



VOL. 44, No. 9

SEPTEMBER 1976

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COVER PHOTO

A ground view of the antennae (circled) at 90 ft. and 232 ft. levels for the new Southern Tasmania Repeater Installation VK7RHT, located near Hobart.

(See story on page 10)

HAM

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crystals. **\$139**

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1,000; DC amps — 1 mA;
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27.125	27.225	27.255
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\$6.50 A PAIR (Transmit and Receive)

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amateur radio QSP

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EDITOR:

BILL ROPER* VK3ARZ

MANAGING EDITOR:

BRUCE BATHOLDS* VK3UV

ASSISTANT EDITOR:

RON COOK* VK3AFW

TECHNICAL EDITORS:

BILL RICE* VK3ABP

GIL SONES* VK3AUJ

KEN PALLISER VK3GJ

CONTRIBUTING EDITORS:

BRIAN AUSTIN VK5CA

RODNEY CHAMPNESS* VK3UG

DAVID DOWN VK3HP

RON FISHER* VK3OM

BOB GUTHERLETT VK3DH

DAVID HULL VK5LP

ERIC JAMIESON VK3ZJ

KEN JEWELL VK3ZNP

PETER MILL VK3ZPP

KEVIN PHILLIPS VK3AUQ

LEN POYNTER VK3ZPG

DRAFTING:

ALL DISTRICTS DRAFTING SERVICE

KEN GILLESPIE* VK3GK

PHOTOGRAPHERS:

KEN REYNOLDS VK3YCY

IWO SPLICHAL —

BUSINESS MANAGER:

PETER DODD VK3CIF

ADVERTISING REPRESENTATIVE:

TONY COOK

*Member of Publications Committee

Enquiries and material to:

The Editor,
PO Box 2611W, GPO Melb., 3001

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NZART GOLDEN JUBILEE CONFERENCE

This conference was held in early June at Auckland to celebrate the 50th birthday of the New Zealand Association of Radio Transmitters. The WIA has always had close links with the NZART and I was privileged to be your representative at this event together with representatives of the RSGB and the ARRL and some 700 members, friends and visitors to the conference.

The business of the conference was not any different to that conducted at our conventions, but the highlights were an address by Sir William Pickering from the Space Communications Centre in the U.S.A. who had an early interest in amateur radio in his university days in ZL. G6CJ Aerial Circus, the Golden Jubilee Ball and the usual field events such as mobile rallies, aerial measuring contest were all extremely well attended evidenced by the forest of mobile antennae in the large car park. Ladies were well catered for by illustrated talks from June Mulgrew who told of taking women from 16-62 on a Himalayan Trek and VK4HK Harry Kinzbrunner on the Early Days of the Flying Doctor Service. Scenic coach trips were arranged including an expensive one for OMs to a greenstone jewellery factory. This was rounded off by suitable speeches from the PMG and the Director of Radio Services in which details of the Novice Licensing were announced.

The organizers are to be congratulated for an extremely well planned conference which enabled Doug Gorman M.B.E. ZL21Y NZART President to keep the various speakers and events to time. This was assisted by catering arrangements which allowed the large numbers present to obtain refreshment at the various breaks promptly and efficiently in the time allowed. If there was a message to be learned from the various technical speakers, it was that amateur radio of the future would be with digital electronics.

May I, on behalf of myself and XYL, express our thanks to WIA for the opportunity to represent the Institute and to the NZART for their entertainment of us.

Planning for WARC 1979 is going ahead on both sides of the Tasman and we trust that our visit will further strengthen the ties between our two countries in all aspects of Amateur Radio.

73 — KEITH ROGET VK3YQ ■

EVENTS CALENDAR

(Times are 20.00h local unless otherwise stated)
(Limited to 3 lines).

September

- 3 Hunter Branch meeting.
- 8 VK3 General meeting — 412 Brunswick St., Fitzroy.
- 9 Illawarra Branch meeting.
- 10 VK2 VHF Group meeting at WIC.
- VK7 Northern Branch meeting.
- 14 VK7 North-West Branch meeting.
- 15 Sydney fox hunt.
- 17 Blue Mountains Branch meeting.
- VK4 Divisional meeting — QCWA Rooms, Gregory Tce, Spring Hill, 19.30h.
- Central Queensland Branch Meeting, Tech. Coll. (Adult Educ.), Bolsover Lane, Rockhampton, 19.45h.
- 21 VK6 Gen. meeting — Science House, 10 Hooper St., W. Perth.
- 23 Brisbane VHF Group, Oakleigh Scout Den, High St., Dorrington.
- 24 VK2 Divisional meeting — WIC.
- 27 VK1 Divisional meeting — Studio in Griffin Centre.
- 28 VK5 Divisional meeting — WIA HQ, West Thebarton Rd., Thebarton.

October

- 2/3 24th South West Zone Convention, from 08.00h 2nd Ch. 40 talk-in. Tumut Racecourse, Elm Drive, Tumut. VK2PN, Box 53, Tumut.
- 30/31 VK3 Western Zone Convention, Birchip.

November

- 13/14 VK7 Hamfest — Evandale ■

QSP

VHF BEACONS

It is noted from RI news of May '76 there were 5 beacons operational in Europe on 28 MHz, 53 on 2m, 23 on 70 cm, 11 in the 1296 MHz band, 3 on 2304 MHz and 2 in the 10 GHz band.

SATELLITES

According to a table issued with the Telecommunications Journal of April '76 a total of 154 artificial satellites were launched during 1975 by or on behalf of 7 countries from 11 different sites in the world. A significant number carried transmissions around 136-137 MHz.

VICTORIAN DIVISION DISPOSALS AND COMPONENTS

The Division advises that all correspondence dealing with Disposals and Components (including mail orders) must now go to 412 Brunswick St., Fitzroy, Vic., 3065, instead of the previous Mt. Waverley address.

ISM AND RFI

May '76 QST advises that the FCC is undertaking a study on the methods most useful or desirable in regulating interference to communications from industrial, scientific and medical devices such as diathermy equipment.

SCHOLARSHIPS

May '76 QST lists a number of scholarships available to US residents, or restricted areas therein, for further studies in electronics or related sciences. (What is available in this field in Australia? — Ed.)

MORSE CODE EXAM

"The Commission (FCC) is planning to begin administration of multiple-choice "message content" telegraphy examinations on a limited, trial basis in the near future at a few FCC examination points. Under this system applicants will listen to a five minute message in the International Morse Code and make whatever notes or copy they wish. Then, they will be given a multiple choice test on the contents of the transmission; 80 per cent will be the passing grade." QST May '76. ■

WIANEWS

Two Federal Government advertisements in the daily press during July claimed the attention of Executive.

PENSIONERS

The first invited submissions to the newly appointed Committee on the care of the aged and infirm. The Executive summarised the Institute's case that financial assistance ought to be made available in home, hostels and similar places where a need can be supported for the supply and maintenance of an amateur station, that some reimbursement ought to accrue to the Institute in respect of the lower subscription rates granted to pensioners and the infirm and, finally, that a significant reduction should be made in licence fees for pensioner and disabled amateur radio operators.

Correspondence on the last item has been going on with the Secretary of the Department for some time. In his letter of 31st March the Secretary stated that a submission for reduced licence fees for aged and invalid amateur licensees had been put to the Minister for consideration. A reminder was sent off this during June.

GOVERNMENT EFFICIENCY

The next advertisement invited correspondence to suggest greater efficiency in Government expenditure. This was to an expenditure committee of the House of Representatives Standing Committee on Expenditure.

The Institute submitted a lengthy document dealing with the manner in which some of the systems operated by the Radio Frequency Management Division require overhaul and up-dating. Acknowledgement was given that in all our dealings with officers of the Division, we receive the utmost consideration and assistance, but it would appear that staff shortages and economies have created the situation where time cannot be given to considering improvements to systems and procedures.

The area given the most attention was examinations in all its many facets. The Institute has previously suggested ways and means for responsible amateurs to be able to assist with examinations, particularly, as an example, in the invigilation of Novice exams. But it is believed the assistance of the Institute ought to go much further. In addition, the format and frequency of the exams needs examination as well as the exemptions, alternatives, syllabuses, frequency, centres and concessions. All these and more were dealt with in considerable detail as illustrating the greater efficiency which ought to be achievable with modern systems.

But, the question must arise whether the Division is really the best organisation to conduct examinations or whether it would be better if these could be taken over by a properly qualified educational institution.

The Institute had something to say about licensing documentation, especially that which affects the call book, and about the need for some de-regulation of the amateur service.

OUTSTANDINGS

A further back-up was the preparation and submission to the Division of a consolidated list of outstandings which have accumulated over a considerable period of time. The list repeats all the points made about examinations and then sets out a wide range of other outstandings (including the 1976 Convention arisings) on repeaters, interference, frequencies and many others.

Yet another lengthy submission was made to the Division in response to negotiations on repeater conditions which had been discussed with them back in February/March of this year.

70 cm REPEATERS

Two other letters went to the Division from the Executive. One was the long awaited finality on 70 cm repeater frequency, since it had not been possible to include this information at the time when the 70 cm WIA band plan for 430-440 MHz (required by them) was submitted last December.

WICEN

The second, drafted by the Federal WICEN Co-ordinator, Brig. Rex Roseblade, VK1QJ, sought clarification and flexibility in re-

lation to official WICEN communications relative to the existing paragraph 94 of the Handbook. This derived from discussions in the recent national Seminar at Mt. Macedon attended by VK1QJ and other official emergency services as well as a representative of the Radio Frequency Management Division.

SUBSCRIPTION NOTICES

The Executive meeting late in July also finalised the reprint now due of the annual subscriptions notice stationery, and in view of Divisional opinions decided to revert to the earlier practice of a subscriptions notice followed at a later date by a Final Notice. Note was taken of the circulars sent out by several Divisions (VK2, 4, 5 and 6) this year to members still unfinancial beyond the automatic cut-off dates for stopping AR address labels to these people. The costs and time involved are not inconsiderable — some of the reasons given for earlier omissions to pay were interesting.

RADIO CLUBS MEETING

The VK6 Divisional Council had approved VK6DY to be the new Chairman of the AARTG and this was confirmed by the Executive. One of the most interesting documents studied was the Minutes of the VK4 Radio Clubs Workshop held in Brisbane during June. Representatives and observers attended in Brisbane from 14 clubs throughout Queensland and N. NSW (Summerland) as far afield as Cairns and Townsville. The venue was the Windsor YMCA rooms, delegates were billeted and some savings were effected by bringing in "take away" food for the two main meals. Even if the cost came to about \$600 the bulk of which was of country return air fares for the delegates. The meetings were chaired by Divisional Council officers and attended by other members of the Divisional Council including the Federal Councillor, VK4NP, more or less fresh from the 1976 Federal Convention in Melbourne.

The objects of the meeting were set down as the exchange of ideas on the amateur service and club activity, the assessment of the needs of amateurs within the Division, the co-ordination of various matters common to all groups, and the establishment of common aims on which future planning could be based. The Agenda covered a wide range of subjects including Federal Executive finances, costs of AR, Divisional finances, Federal Executive activities, education and training, the "Arnold" Report, licensing and bandplans for repeaters and beacons, the international scene and WARC 79, Intruder Watch, recruitment planning, WICEN, public relations, Divisional services, interest in contests, club activities and relationships with the Division and so on.

Many of the delegates said they had prior reservations about a meeting of this kind, but at the end of it were convinced that it was fully justified and very successful. They hoped that these meetings could henceforward be held each year or biennially, preferably just prior to the annual Federal Convention.

VK4 VISIT

Also finalised during July were details of the Federal Presidents' official visit to various Queensland centres late in August. He is scheduled to address meetings in Brisbane, Rockhampton, Mackay and Townsville and will have with him the Institute's edited videotape of the G6CJ "aerial circus" lecture given to a special VK3 Divisional meeting late in June. Unfortunately the availability of this videotape is severely restricted by reason of various conditions imposed upon it by the lecturer who is, after all, a professional engineer in this particular field. This could have been the first videotaping of his lecture which he has given nearly 150 times throughout the world.

RECRUITMENT

Finally the Executive considered recruitment planning and approved the form of the advertising and the leaflets prepared for the August "stage one" of the programme which was kept modest in cost mainly to gauge the extent of the interest, and to publicise Institute aims and services more widely.

Members are urged to support this recruiting campaign most strongly and will be aware of the material which went out as inserts into August AR. If an influx of new members is achieved, the second stage is of course to keep them as members by various means and doubtless this aspect will be claiming the attention of Divisions and local clubs and groups. ■

A SIMPLE PULSE POSITION MODULATION SYSTEM

Digital communication techniques have received only a small amount of attention in Amateur literature. This is possibly because the seeming complexity of these systems has frightened off prospective experimenters. However, once some of the theory and the techniques of digital modulation systems have been mastered, they no longer seem mysterious and awe-inspiring.

The basis of all digital modulation systems is the Whittaker-Shannon sampling theorem which stated simply is as follows: When an audio signal of bandwidth W is sampled (i.e. instantaneous values taken at periodic intervals) with a sampling frequency equal to or greater than $2W$ then the audio signal which can be reconstructed from this sampled waveform will be an exact copy of the original audio signal.

This is illustrated in figure 1.

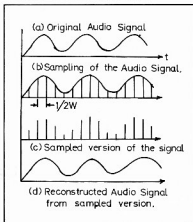


FIGURE 1

The type of signal shown in figure 1C is known as a pulse amplitude modulated signal since the amplitude of each of the pulses represents the value of the audio signal at that particular instant.

If, instead of having the amplitude of the pulses proportional to the instantaneous value of the audio signal, we were to make the width of these pulses proportional to the signal, while keeping the amplitude constant, then pulse width modulation would be produced. This is illustrated in figure 2.

Consider now the pulse width modulated signal in greater detail.

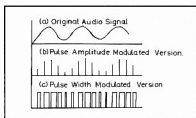


FIGURE 2

The pulses which cause the sample to be taken are generated by some form of oscillator running at frequency $2W$ or greater as shown in figure 3A. The pulse width modulated waveform produced by figure 3A acting on the audio signal in some suitable circuit is shown in figure 3B. If the waveform shown in figure 3B is differentiated, then the resultant is shown in figure 3C. Note that the upward going pulses all occur at the points where the pulses taking the sample occurred in figure 3, but the positions along the horizontal axis (time axis) of the downward going pulses depend on the width of the pulse in figure 3B and thus on the instantaneous values of the audio signal that is being sampled. The signal shown in figure 3C is of a type known as pulse position modulation.

Let us now consider the pulse position modulated signal in a little more detail as shown in figure 4.

For a simple digital system we require only two possible states for the signals $+V$, 0 . Waveform figure 4a has three possible states, $+V$, 0 , $-V$, so we can convert it into two possible states by rectifying it as shown in figure 4b. We now have a problem — how to distinguish the fixed sampling pulses (the time reference pulses) from the position modulated pulses. A very simple approach is to make the reference pulses longer than the modulated pulses, and in a demodulator have a

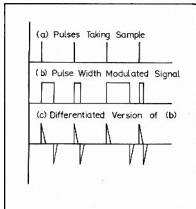


FIGURE 3

Ross Dannecker VK4ZFD
52 Pohlman St., Southport, Qld., 4215.
(Submitted 31st May 1974)

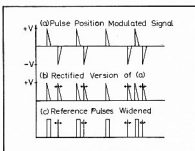


FIGURE 4

pulse length discriminator to sort out the two types of pulses. This approach is shown in figure 4b.

Now let us look at one cycle (one frame in digital terminology) of the above waveform. Refer to figure 5.

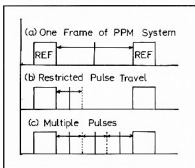


FIGURE 5

As our system stands, the position modulated pulse can take any position between two successive reference pulses. If the position modulated pulse sits half way between the reference pulses for zero input to the modulator and we then apply a sine wave input to the modulator, the pulse will move say to the right of the zero position on positive half cycles and to the left on negative half cycles. The distance it is displaced from the zero position is a function of the amplitude of the input signal.

If we limit the maximum allowable input signal to some pre-determined value, then the region that the position modulated pulse can occupy will be restricted to some fraction of the total distance between the reference pulses.

In an AC coupled system, all we have done is to reduce the amplitude of the AC output signal requiring a little more gain in the amplifier following the demodulator. We can then apply a DC offset to the input signal and place the region that the position modulated pulse can occupy at any position between the reference pulses as in figure 5b. This then leaves a large

vacant region between the reference pulses into which we can place more position modulated pulses.

If these multiple position modulated pulses never get mixed up by a demodulator, then we have a number of independent channels being carried on the one digital signal. The process is known as multiplexing. The penalty to be paid for adding more channels is an increase in the bandwidth required to transmit the signal. This is true of all multiplexed systems.

The practical pulse position modulation system shown in this article is a rather simple version, originally built to demon-

strate pulse position modulation to students. It is, however, a workable communication system and can quite happily carry four 5 kHz bandwidth voice signals through a noisy transmission channel of bandwidth down to 30 kHz.

The circuits used are now described in detail.

Circuit in figure 7 shows the 4 channel pulse position modulator. IC "A" generates a sawtooth waveform. Op. amp — A1 generates a square wave of frequency 10 kHz (period of 100 μ S). A2 converts this into a pulse train which is used as an input to integrator A3 which generates the sawtooth.

IC "B" is four audio amplifiers. The DC level of the output is set by the 50k pot. Each amplifier has a gain of ten, and the amplitude of its AC output is limited by the zener diode clipper.

IC "C" is four comparators. The sawtooth waveform is fed to the inverting input and the output of one of the audio amplifiers to the non-inverting input. The waveforms around the comparator are as shown in figure 6.

Suppose the instantaneous output voltage of the audio amplifier is as shown in figure 6a. When the voltage of the sawtooth waveform is less than that of the audio input, the comparator output is a high voltage (clamped to +4V by the zener diode). When the sawtooth voltage is greater than the audio input, the com-

parator output is a low voltage. The resultant output waveform is as shown. Note that the positive going edge of this waveform is fixed in relation to the sawtooth waveform, but the negative going edge will vary in position depending on the value of the audio input. The output waveform is differentiated by an R-C circuit on the input of T2, T3, T4 to produce the waveform shown in figure 6C. This is fed to the BC109 pulse amplifier T6. This transistor is normally saturated so its output is low. Positive going pulses therefore do not affect its state, but negative going pulses turn the transistor off causing its output to rise to +8V for the duration of the negative going pulse. The output at the collector is as shown on the circuit. Positive going pulses from the four channels are added together in the following BC109, T7, to produce the output shown.

The sawtooth output of A3 is differentiated and fed into another BC109 pulse amplifier, T1, to produce the reference pulse of 30 μ S duration. This is then added to the four 3 μ S pulses to produce the combined output which is available in inverted or non-inverted form.

Figure 8 shows the 4 channel pulse position demodulator. The input waveform is fed into a slicer consisting of 3 BC109 transistors and the output of the slicer is available at the collector of T4. This becomes the input to the clock of the MC 14015CL four bit shift register (a 7495 or

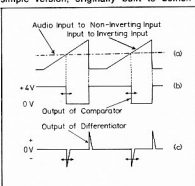
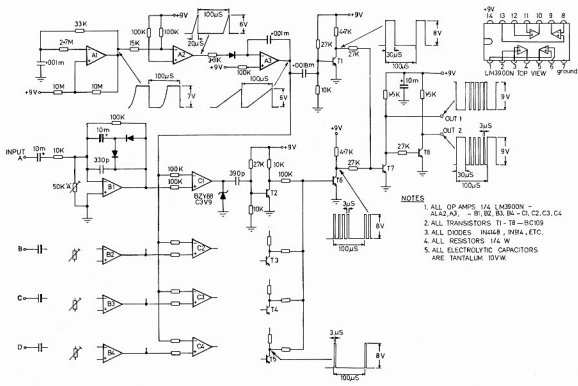
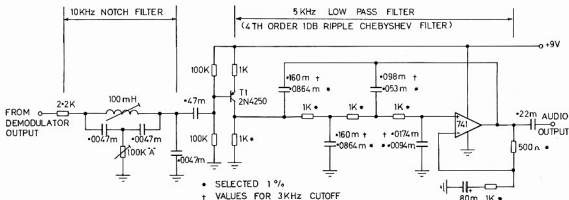
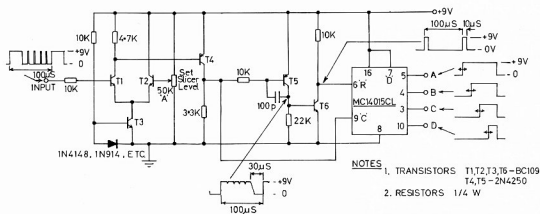


FIGURE 6



- NOTES**
1. ALL OP AMPS 1/4 LM3000N - ALA2, A3, - B1, B2, B3, B4 - C1, C2, C3, C4
 2. ALL TRANSISTORS T1 - T8 - BC109
 3. ALL DIODES 1N4148, 1N914, ETC.
 4. ALL RESISTORS 1/4 W
 5. ALL ELECTROLYTIC CAPACITORS ARE TANTALUM 100VW

FIGURE 7. 4 CHANNEL PULSE POSITION MODULATOR



7496 could be used with suitable interfacing circuitry). The data input of the shift register is hard wired to the + supply.

The output of T4 is also fed to the base of the other 2N4256, T5, which is wired as a Miller integrator. The time constant involved is such that the 3 μ S channel pulses produce no output at the collector of T5 but the 30 μ S reference pulse does provide an output. The separated reference pulse is inverted by T6 and fed to the reset input of the shift register.

Operation of the shift register is as follows. Once the four outputs have been reset to zero by the reference pulse, the first channel pulse to come along will change the first shift register output from OV to full supply voltage. The second channel pulse will change the second output from 0 to supply. Similarly for the third and fourth channel pulses. The outputs of the shift register as shown in figure 8 are now four pulse width modulated signals corresponding to the four original inputs to the modulator.

The original signals can now be recovered simply by low pass filtering each of the outputs. Figure 9 shows the filter. Firstly the 10 kHz component in the waveform is removed by a notch filter similar to those used in broadcast band radio tuners. The 2N4250 transistor T2 then buffers the output of the notch filter to drive the active RC low pass filter. This filter is of the chebyshev type and is fourth order with 1 dB passband ripple. The values shown for 3 kHz cutoff would be preferable for a voice communication system. Output of the low pass filter is around 500 mV p-p for a fully modulated input.

The only piece of test equipment needed to set the system in operation is a reasonable CRO of at least 2 MHz bandwidth.

This is not intended to be a state of art communications system as there are many modifications which could be used to improve the system. Rather it is published to provide a useful starting point for interested experimenters.

NOTE BY THE TECHNICAL EDITOR

Some readers may be asking why go to all this trouble to almost destroy the audio signal and then have to recover it with sophisticated circuitry at the receiver. Well, as with FM and RTTY, the Pulse Position Modulation (PPM) signal may vary in strength over wide limits without affecting the recovered audio. If a signal can be established over a path it will sound R59 even if it is noisy at the receiver detector.

For amateurs there is another advantage. The PA duty cycle is low. In the system described the transmitter could run three times as much input for PPM as for FM. A gain of almost 5 dB! And you don't have to learn CW or how to type! By reducing the duration of the 30 μ s reference pulse, which consumes most of the power, even greater peak power inputs could be run. The transmission bandwidth may be too broad for other than UHF and higher, however it does suggest a use for that old AM receiver.

AX3SIG — EXERCISE “HAM FEST”

GOLDEN JUBILEE STATION —

ROYAL AUSTRALIAN CORPS OF SIGNALS

To celebrate the fiftieth anniversary of the formation of the Royal Australian Corps of Signals, an amateur radio station was set up at the Signals Depot, Watsonia Barracks, Melbourne, to operate on a 24-hour basis from November 3 to November 10, 1975.

To mark the occasion, a special call sign, AX3SIG was allocated to the Corps for their Golden Jubilee station.

A large marquee was erected on the cricket oval at Watsonia to house the equipment and the oval provided space for an extensive antenna farm.

The station was probably the most elaborate in the history of amateur radio in Australia.

In the control centre marquee, there were duplex positions to provide for split frequency operation on 80 through 10 metres with each position equipped with 2 x 400 watt SSB/CW transmitters/receivers; a 150 watt transmitter (AM and CW) on 160 metres and a 10 watt 2 metre VHF position. The show-piece of the HF installation was a Collins trailer-mounted fully mobile communications centre, featuring a high-powered 10 kW transmitter (certainly not used on the amateur bands!) and a low powered secondary transmitter which was used by AX3SIG. This equipment is fully air-portable and provides in-



Antenna Farm at AX3SIG during exercise Ham Fest. Visible are 3 TH6DXX beams, 160Mx mast, whip antenna on Collins Mobile Communications Centre.

built facilities for SSB/ISB/CW and RTT together with an automatic telephone exchange and all associated channelling and control equipment.

The antenna farm featured 3 x TH6DXX beams; dipoles for 160, 80 and 40 metres; 2 x 2-30 MHz log-periodics; a 30-foot whip for HF (2-30 MHz) and a Ringo on 2 metres.

The station commenced operation on the morning of November 3, 1975 and operated continuously until close-down on the morning of November 11.

At all times, the station was under the control of a licensed amateur and the operators were drawn from the Operating Troop of 2 Signal Regiment, of the Australian Army Field Force Command.

Propagation during the period was generally poor and activity was low until the last two days, when conditions improved.

Approximately 1000 contacts were made; the greatest number being with VK3 — 350 contacts and Japan on 21 MHz — 280 contacts.

During the period of operation, contact was made with many serving and former members of the Royal Australian Corps of Signals and also with members of sister Corps of other Armed Services including UK, New Zealand, USA and Papua New Guinea.

Some seldom-heard call areas were worked including Poland, Taiwan, Sardinia, Sicily and Malta.

A special QSL card was produced and the QSL Manager (VK3ZA) has now checked all logs and all cards have been despatched.

On Saturday, November 8, call sign AX2SIG commenced operation for the day from 5 Signal Regiment in Sydney and their first contact was with AX3SIG to pass greetings on the Corps' official birthday.

More than a 1000 visitors passed through the station at Watsonia during its operation with a peak on Saturday, November 8, following the official Corps' birthday parade.

The Royal Australian Corps of Signals expresses its thanks to all amateurs who were worked for their keen interest in the station and the wishes which they expressed on the Corps' Golden Jubilee.

Among the other amateurs associated with the Signal Corps who operated the station were John Buxton, VK3YJB; Tony Ballantine, VK2AAA and John Loftus, VK3QK.



Warrant Officer John Wilson, left, and Second Lieutenant Rob Elworthy operating one of the Duplex 400W SSB/CW positions during the Ham Fest.

Photos courtesy Army Public Relations.

TEACHING THE MORSE CODE FOR AMATEUR RADIO PURPOSES

Roger Davis VK4AAR

There have been several articles on learning more code in "AR" in recent years. This short note is to describe a system I have used successfully to teach morse code to numbers of club members in 1975. While it will no doubt interest individuals wishing to learn morse code, I have written this particular article specially for my colleagues who, as RADIO CLUB INSTRUCTORS, face the problem of running classes to teach morse code for the A.O.C.P.

Morse classes in a small club with only 1 or 2 instructors can be a problem. Students who study the theory side for a period of two years may become interested in morse at different stages while others are not interested in morse at all. Morse classes will thus bore a large percentage of members at any one time. In any case weekly classes to teach receiving are quite inefficient and some instructors consider them useless. Weekly classes will suffice to give guidance in sending procedure once students can receive. The solution seemed to be to provide students with a lesson on cassette tape. A survey showed that 47 out of 55 club members owned a cassette player of some description.

The author had long believed in a "SOUND ONLY" method of learning the letters. These days the usual method is to read from an alphabetical list the "di-dah" or worse still the "•—•—" configurations and "learn it off by heart". Then these visual images have to be translated into sound images or the reverse process during receiving. Such a learning process is often inefficient. Surely it would be better to learn the sound directly as a rhythm pattern.

A cassette tape with a "teach yourself; lesson" was specially designed with a view to having members learn the code by themselves, at home, at their own pace.

The author had previously designed and recorded such a tape to teach morse code to a blind person but it has long since disappeared in a divisional tape library. After trying several new formats and trying them out on several members, a format was perfected on the fifth attempt. (Perfected is a relative term — it takes several hours just to record one side of a C60 so that the criteria was lowered as time went on. A recording studio will be used for the next edition because although the morse is fed direct, the mike was open all the time for voice). The original production of the master required a number of very late nights but perhaps the success in teaching NAACP students makes it worthwhile.

Why design a new cassette for teaching morse when several commercial products existed? Several commercial lessons were already owned by various club members. Some had three different versions already but none of these was satisfactory and each for a variety of reasons.

The usual pitfalls as described in the standard texts; ARRL HANDBOOK, THE RADIO HANDBOOK had all been fallen into by the commercial products and there is no need to dwell on them here.

The tape "INTRODUCTION TO MORSE CODE" was made to fit onto the two 30 minute sides of a C60 cassette. Side A teaches the 26 letters of the alphabet in 5 groups as follows:

Firstly the letter is demonstrated:

Voice: "di - dah" . "A"

Tone: • — • — • —

At the end of each group of 5 letters a random practice session is given as follows: Tone — • — • 2.5 second pause. Voice: "C" then a 2 second pause Tone • — • — • 2.5 sec. pause, Voice: "F" . . . etc.

In this fashion each of the letters in the group is covered several times in random order.

The basic process which was aimed at is "RE-INFORCEMENT OF LEARNING".

You hear the tone oscillator equivalent of di-dah and you have 2 seconds in which to say to yourself . . . um? . . . "A". The voice then says "A". If you do not get it in 2 seconds you will be told A, and this will refresh your fading memory. If you are correct then you will feel pleased at your success. This method sounds simple and best of all it is working. Student club members who were completely new to morse code claimed to have mastered the letters in 4 or 5 repeat playings of each section.

Side B covers the 10 digits and the special characters for the Australian A.O.C.P. Members reported that having mastered the 26 letters on side A the numbers and special characters are learnt much faster. This is fortunate since these characters are harder and in the case of the numbers many students spend a lot of time trying to decode numbers by counting the incoming dits. Having been trained to listen only to rhythms the student is less likely to fall into this bad habit. The last 10 minutes of side A and the last 15 minutes of side B are completely random practice sessions but still using the format of code/pause/voice/pause. After finishing the cassette lesson the student will "know the code" and can then progress to standard practice tapes or practice sessions as broadcast by various stations of the Amateur Radio service on 3550 kHz in the evenings.

It has always been recognised that one must learn to receive before starting to send. Otherwise one will get to learn ones own mistakes — ones own poor sending will sound normal and good morse will sound wrong. But many students will tell you "I cannot start to learn morse yet because I cannot find a good place to buy a morse key". Once convinced that they can learn the code without owning a key, the process can begin. After a person can receive well, it is time to start sending. If a person knows what good morse sounds like he can correct his own sending to a certain extent. The weekly availability of an experienced operator then provides for corrections of minor individual errors and guidance in holding the key. Such guidance only takes a few minutes per week. Each student brings his own key and oscillator to the classroom at this stage and takes turns sending text to the others. As a further exercise a round table QSO is simulated to teach the additional features of CW operating.

The Windsor YMCA Radio Club decided that rather than the problems of cassette loan library each person would purchase his own copies from the club. Several club members now assist in the copying of cassettes from the masters so that the club can offer copies for sale to individuals or clubs. Other clubs might consider a similar scheme. This article was intended to inject some new ideas and systems into the teaching of morse code to intending Amateurs. Further details from the club VK4AYM C/- QTH VK4AAR.

In conclusion there are now at last some real results — 6 out of 6 club members have passed the Novice morse exam while several non member Z calls who used the cassette system have reported a pass in the morse exam. ■

QSP

RFI

"Most consumers do not understand that when they may encounter interference with their home television or radio set after an amateur or citizen band radio operator moves next door, the source is not a defect in the equipment of their neighbour but with their own radio or television". Senator Goldwater's introduction (part) to a Congressional bill on RFI Feb. '76 as reported in QST May '76 with the additional comment by K7UGA, that the consumer doesn't realise that the device for which he paid so much money is missing a few parts which could keep it from trying to be a receiver. The industry has been slow to recognise the rapid growth in the number of radio transmitters, and thus, the great increase in potential RFI, he said.

RECIPROCITY AND FEES

New Zealand has reciprocal licensing of amateur radio stations with the USA and the French Republic which includes Cook Islands, Niue and Tokelau Islands. NZART 1976 Call Book. From the same source it is noted that the annual fee for an amateur station licence in New Zealand was increased from \$3 to \$8 from 1-3-1976.

DREAM OR NIGHTMARE:

A REPEATER FOR SOUTHERN TASMANIA

B. J. Morgan, LL.B. VK7RR
12 Avondale Grove, Mount Nelson

Hobart, the capital city of Tasmania, nestles snugly beneath the 4,000-odd foot Mt. Wellington. Since the earliest days of amateur radio, Hobartians have looked fondly at that mighty magnificence and swooned at the thought of a VHF site to end all sites. Thus as equipment became more and more portable, mountain topping DX-peditions became regular events and results invariably justified the trouble.

Then one day a new word came into the language — Repeater. Those eyes which were growing dim from many years of covetous glances at the mountain top, began to dream of a repeater to perpetuate their dreams and ambitions. 1970 came and construction of a repeater was commenced. The initial work was carried out by Ron VK7ZRO and Dave VK7MD. By the middle of 1970 a repeater was in existence except for a bug free keyer, antennae and a site. The equipment was comprised of a 1674 transmitter exciter board into a low power final delivering 25 watts of power; the receiver a modified Ranger 800 2 with 6CW4 front end. As a unit this repeater was used on a manned basis for a short while, but increasing commitments necessitated a change in repeater committee.

The 'Northerners' by this time (to the uninitiated, the northern branch of the Division) had been causing strange splutters to appear "a bit above channel A" and suddenly there was a licensed repeater in Tasmania and the Southerners had been beaten to the punch. However, not to be outdone, the Southern repeater under a new committee, finally managed to ascend the mountain two years later. Antennae were erected on the commercial television tower and initial tests were commenced. However, all was not as it should be. Spies in the north of the State were sent out to give signal reports. Comparisons between the repeater and a mobile some 100' below showed a notable difference — the mobile could be heard the repeater could not!

Faced with this result, the committee carefully stored the repeater in a corner of the building and repaired to warmer climes. It was obvious that a rethink was necessary. Was the lo-loss cable not so lo? Was the transmit power too low? Were the antennae unsuitable? Time passed and the repeater was forgotten until one day came news of a fire on the mountain. The damage was not severe but a decree was issued by the owners of the building that no valve equipment was to henceforth be stored therein. The repeater story that had never started, had just ended.

Another committee was formed to build

a solid state repeater. Enthusiasm was not high and an air of gloom and dismay pervaded the project. The receiver was unstable, the exciter was too broad, the final was temperamental and to make matters worse two members of the committee were newly married! The operation was again at a standstill but this did not deter the old eyes from still casting covetous glances at the mountain top from time to time.

Towards the end of 1975 it was realised that a local amateur who also was an employee of Telecom, was the engineer responsible for antennae and cables etc. on the National TV tower on the mountain. Thus the question was cautiously born, "What about moving the valve repeater". But where was it? After much careful looking, a piece of coaxial cable was found protruding from a dark corner and at the other end was the device, very

dusty and abandoned but still in one piece.

Some two years after first ascending the mountain, the repeater was brought back to sea level having had less than one hour's use. The first step was to build a reliable keyer. This presented no problem to one of our engineer amateurs VK7AW, who in a short space of time had a very satisfactory little man working away on MCW from inside a small die-cast box. The repeater was plugged in and turned on. Nothing. In case the shock had been too much the process was repeated with the same result. A careful inspection of the innards revealed that the transmitter was OK but the receiver was the perfect attenuator. Not having any need for such a good attenuator, it was pulled out and work commenced on fixing it. Hours and hours later, after countless cups of black coffee it again



Inspecting the aeriels of VK7RHT.

Photos: B. J. Morgan and W. T. Moffat VK7TM



Final tweak before going into service.

emitted noise. But what sensitivity? When cold it was giving 20 dB quieting at 1 microvolt, as it warmed up this decreased to a miserable 5 microvolts.

The repeater was set up for evaluating performance, for a 1 month test period from a 1000' elevation, at an amateur's residence. This gave time for consideration of antennae at the new site and a modern receiver. The month passed and unfortunately we were no further advanced. A rebuild of the transmitter final had been considered desirable and at the same time the power output was raised to 75 watts. An STC 131 receiver was considered a very good basis for a new repeater receiver and at no cost one was obtained and modifications carried out. It was heartening when, after many long and sleepless nights spent huddled over benches and FET's, the receiver was giving 20 dB of quieting at 0.35 microvolts. Maybe the repeater might work well after all. The committee at this stage consisted of four. Phil VK7SS was responsible for antennae. Andrew VK7AW for the keyer and timing circuitry, Tom VK7TM and Brian VK7RR for the transmitter and receiver.

Then came the big test. Towards the end of April antennae were erected under the 90' platform of the National TV tower. There were two existing runs of lo-loss cable that were surplus to requirements and these were obtained on loan. When connected it was obvious that either one cable or one antenna was faulty. By

swapping cables from antenna to antenna the fault was traced to one of the cables. Next job — fix the cable.

Saturday, May 8th was C day. Bright and early at 6.45 a.m. Brian and Tom met and started off for the mountain top. Andrew and Phil followed. The weather was against us and it was impossible to do any work. It was agreed that, subject to the weather improving, the repairs would be started the next day. However, whilst the weather was satisfactory, we had forgotten Mother's Day and so the work was called off again.

During the following week, with the assistance of some amateurs who were also authorised tower climbers, one antenna was raised to the 232 ft. platform and a cable run was taken up from the 90 ft. level to the top antenna. It was realised that time was working against us because of the risk of deteriorating weather. Several weeks were spent in tracing out the faulty cable and trying to repair it. Ultimately it was discovered that the cable was completely full of water and was beyond repair. After much discussion and a meeting of interested parties, it was agreed to purchase new lo-loss cable at a price of approximately \$300.00. On the 29th of May this cable was run in the most appalling and rapidly deteriorating weather conditions. However, everything was completed and then came the big moment.

But to digress for a moment, Brian and Tom had decided to run the repeater transmitter on a temporary aerial at ground

level for the week whilst we were waiting for the new cable. Some of the lightest moments in the saga came whilst users (not knowing that we were not using the proper antennae) sat in the city, gazed up at the tower and expressed all sorts of theories about why signals were noisy even where they could see the tower. It was fortunate that the inventor of co-axial verticals did not have to endure the criticisms of angle of radiation, etc., whilst the unenlightened discussed the faults of the antenna at length. Returning to the now completed cable run, the truth about the aerials was revealed and the two tower antennae were connected, the power output was increased to its nominal 75 watts and the big switch was turned on. We then sat waiting for reports. We were not long in waiting. In the first few hours, reports came in from over 100 miles away, from a hand held unit some 60 miles away and from mobiles 50-70 miles away. As a start then the repeater was working and very well at that.

After two weeks of air testing the equipment is still being run by virtue of an operating permit to enable interference problems, etc., to be dealt with, if and when they appear. To date there has been nothing untoward occur. We have been advised that channel Two (new band plan) has been confirmed as our operating channel and the call sign VK7RHT will soon be granted.

This story in reading does not adequately relate the problems experienced in setting up a repeater on a "congested" mountain top. Whilst we did not need to purchase or erect towers, etc., we had to counter any possible intermodulation faults caused with commercial services in the vicinity, ensure minimum cable loss (the run to each antenna is a minimum of 350 ft.), engage the voluntary services of qualified and medically suitable riggers to carry out the installation and connection of the antennae and cables and perhaps most of all, to work in sub-zero temperatures amidst ice and snow, gale force winds and driving rain, all taking their turn to hinder the workers.

Sequel. The repeater has already shown itself to be the realisation of a life's dream for those intrepid pioneers of the mountain-top gazing. Perhaps not surprisingly it has attracted many old timers to 2 metres. The success of the project already can be gauged when, in a conversation recently, two OTs new aspirants to 2 metres were both trying out their multi-channel mobiles. One suggested they go to 3,590 and the reply was, "Which channel is that on this rig?"

Equipment TX : TCA 1674 + QQE06/40 final, 75 watts out—

Receiver: STC 131 modified front end with MPF 1000 and helical resonators.

Cable: Andrews FHJ114 foam filled, HM9 air pressurised.

Antennae: Home built, stainless steel co-axial verticals, sealed in polyurethane compound and fibreglass.

Timer and Keyer: Home-brew using ICs.

PACIFIC MARITIME MOBILE NET

E. J. Mulholland P29EM/VK4AEM
P.O. Box 3082, Port Moresby, Papua, N.G.

The Pacific Maritime Mobile Net has been operated by Robby YJ8AN, at 0530Z on 14.30 MHz for many years. Its purpose is to provide a safety and weather service to the many private yachts cruising in and around the Pacific, who are equipped with amateur radio.

I became interested during the latter half of 1975, when because of ill health I was confined largely to my home, and thus Amateur Radio became a very important therapy. When Robby, YJ8AN, went on holiday for a month to New Zealand from 21 February, 1976 to 29 March, 1976, he paid me the compliment of inviting me to act as net controller during his absence. All dates and times quoted are in Greenwich Mean Time.

An emergency was declared by Maurie HP2BKZ/MM at about 0540Z on 8 February, 1976 to Robby YJ8AN, as net control. In brief, a passenger had fallen down a cliff on the island of Rapa Rapa in French Polynesia, and although there were several medical doctors aboard "Yankee Trader", the patient's condition indicated that an aero-medical evacuation to hospital may be needed.

This was handled by net control YJ8AN from that time until about 0808Z, when Robby lost propagation. Up till now the aim had been to establish contact with the French authorities in Papeete, "Yankee Trader" could not make contact on any marine or commercial frequency.

When Robby YJ8AN lost contact, P29EM offered to act as relay, as I could copy all stations involved. By this time, 0808Z, we had managed to raise a young lady, Pauline, on a yacht, HP9XPC, moored off Papeete, and passed to her a request to get hold of F08AU, Ed, whom we knew

to be connected with the French Administration in both the maritime and communication areas.

It is understood that this young lady rowed and walked some six miles at night, and finally located Ed F08AU, who came straight on frequency.

From 0808Z to 0837Z, the net F08AU, HP2BKZ/MM, HP9XPC/MM, YJ8AN with P29EM as control made the necessary arrangements to have a French doctor on landline to Ed, F08AU, and the ship's doctor in the radio cabin with Maurie, HP2BKZ/MM.

From 0840Z to 0955Z the necessary medical information was passed — ship's doctor to P29EM, P29EM to F08AU, F08AU land line to French Government Doctor, and in reverse — complicated by the American/Australian/French accents involved and the somewhat unusual to me, medical terms being used.

From 1059Z to 1152Z the net was joined by Allen, ZL1AWP as back up. In this period certain plans and counter plans were put forward by the French Authorities for consideration by the Captain of "Yankee Trader". In brief, from "Yankee Trader's" then present position, and in consideration of the weather, the offer made by the French of helicopter evacuation from Mururoa, or conventional aircraft from Touboulawai would result in:

Yankee Trader to Mururoa — 60 hours
Yankee Trader to Touboulawai — 48 hours
Yankee Trader to Papeete — 30 hours

The Captain decided on the shortest course and continued to proceed to Papeete.

At this time we closed the net for that night, and agreed to come up on following morning.

The next sked was 2059Z to 2110Z, F08AU, HP2BKZ/MM, P29EM, as control.

This merely confirmed that the patient had not deteriorated and the previously agreed plans were being followed.

A further sked was held 2205Z to 2207Z, F08AU, HP2BKZ/MM, P29EM, as above.

It was agreed that a listening watch would be maintained on the hour, and check skeds were held, now 9 February, at 0056Z-0100Z, 0354Z-0400Z, and of course on the regular MM net 0530Z with Robby YJ8AN as net control. Although P29EM was not directly involved, the following must be one of the most complicated communications ever attempted. The French Government medical officer now had radio communication but could not talk direct to F08AU, net control or the vessel, so we had:

The French Doctor F08EE in French to F08DR, in French to F08AU, in English to YJ8AN, in English to HP2BKZ/MM, and reverse, discussing the clinical symptoms exhibited by the patient. A tribute to the patience and attention of all involved is the fact that the traffic was successfully passed.

The next sked was on 10 February, at 0613Z-0639Z, F08AU, HP2BKZ/MM, P29EM, the results of which were passed to Robby YJ8AN 0641Z-0643Z, and arrangements made for listening watch 2200Z, on 11 February, 0200Z, 0600Z, 0700Z. Skeds were kept BP2BKZ/MM, P29EM at 2158-2205Z, on 11 February, 0204Z-0220Z, by which time "Yankee Trader" had arrived in Papeete, and the patient was safely in hospital.

I have written this event at some length, because I had the good fortune to be involved as relay and control, which taught me a very great deal, and because it does illustrate the co-operation of the Amateur fraternity, regardless of race ■

TRY THIS

Ron Cook, VK3AFN

Bill Rice, VK3ABP

FROM THE DESIGNERS NOTEBOOK
John Day VK3ZJF and G. N. Long VK3YDB

TEMPERATURE METER

For some of the work we have been doing lately, we needed to be able to measure variations in the case temperature of some power transistors. Not being able to measure the case temperature, led to the needless destruction of some devices due to over-dissipation.

Obviously, we needed some form of surface temperature meter. The following circuit uses a silicon power diode as the sensing element in a bridge configuration, feeding a differential amplifier to drive a meter.

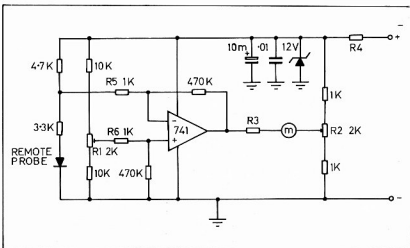


FIGURE 1

Potentiometers R1 and R2 are used to set lower and upper limits respectively. Resistor R3 depends on the sensitivity of the meter you use. If the system has too much gain for your application, the values of R5 and R6 may be increased but must be the same value as each other.

The probe diode may be mounted in any convenient holder and should be fed with co-axial cable. ■

PRACTICE WITH A MATE Ron Cook, VK3AFW

If your CW is a little rusty, one of the best ways of getting back to speed is to enlist the assistance of a reliable friend. AR magazine and the daily paper make excellent sources of plain language copy. To increase one's acquaintance with numerals, the classified advertisements could be used, however, one can predict the numbers with some accuracy. A better method is to have groups of five characters made up of letters and numerals arranged in random order. Each group of five represents one average word and this helps in keeping the speed steady.

How then does one obtain these groups?

Well, I had reason to become familiar with the operation of a small computer and set about the production of blocks of nearly perfectly randomly selected 5 character groups as an exercise. The only difficulty encountered occurred in teaching the machine (or the operator?) to get the "words" out of the machine onto paper. The result is reproduced on this page. There is no particular reason for only printing out 25 by 25 word blocks, as the machine could create thousands of words in a second most likely without repeating any particular combination. Any character (letter or numeral) has an equal chance of being selected. Thus about 1/3 of the characters are numerals.

Having acquired your friend and practice oscillator, he can proceed to send the first row of the first block followed by the first row of the second block etc. Next time, the columns could be sent in sequence. Other combinations of "words" could be made up, however, once they start to become familiar it is time to get another printout (from a friend with a computer). ■

QSP

NEW CALL SIGN PREFIXES

According to Radio Communications July '76 the prefix series D7A to D9Z has been allocated to the Republic of Korea.

UK LICENCES

According to Radio Communication July '76 and resulting from continuing discussions between the RSGB and their licensing authority, a new form of licence will be devised for issue in 1977 for new licensees, as well as being available to those holding existing licences. The new licence is stated as designed to cover all forms of image transmission (ATV, SSTV, Fax) as well as doing away with separate letters of authority for hand-held equipment. The new licence covering all modes and mobile will of course cost more, 3 or 5 year licences were considered, they say, but for several reasons this was rejected. Yet another example of the liberalising influence overseas.

00J28	FVWE8	SYM0Y	BUCDT	34BT4
M0UCD	R7H33	4NR6L	CSILZ	LZJ33
35BUV	IJM0I	ZLCSU	CSYNE	90G9S
UCS1K	V0J33	26XF0	0J28F	QYBY1
9PA0H	4NE8D	T428F	0UCS1	ZJM0U

XG8F0	UZJ27	J19S1	KVPDR	6XH4N
VE00J	27KNR	6ZKVO	J19PS	UCSYB
YNWQY	NW0UV	0J35V	1LXDE	00H4N
E9A0G	9S1ZK	BR5V1	LZKNW	VE0UX
H6ZKB	YBR5B	YM01K	BUCA1	KBYM0

IZJH0	T428F	QT28G	9AAAP	DW0T3
25XF0	T19SU	CAAPF	0J26X	69SYB
T335C	A0J1B	DT41B	DT34H	0T33J
5BY19	P5UXG	7J27H	6LZJH	0UCSU
XF0UX	FVWQT	35VIL	CSUXH	5VPF0

R7KBT	35CSI	KVIZL	XDE9P	DR7J2
8FQR7	J19A0	67J27	KNE9P	A0H5C
ST27H	6ZLZH	33ANE	00G8G	8G7G6
LCSIL	XF90F	01LXF	QT28G	7G7KB
UCSUX	G9SUX	H6XHS	CAA0G	7KNE9

APFVW	QYNE0	IKVPF	QR7H4	10OH6
LXH5V	0G8DR	7J27J	27KBR	4NR5C
AAPDT	4NE00	H4BT4	NWQT2	7KNVQ
R5V0H	5XFWE	00J35	CAAPD	E9APD
WQT27	H334N	WQT4M	QR5CD	R6LXG

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THE HY GAIN TH6-DXX

In the four and a half years that Commercial Kinks has been running, this month is the first time that a commercially made antenna has been the subject of some modifications. Perhaps modification is not quite the word, as these are really setting right some design deficiencies. The antenna in question is the popular TH6-DXX. An article from Geoff Wilson VK3AMK for this column prompted a closer look and I contacted Henry Alcorn VK3AYG who was assembling his TH6 to get his comments. While there is some duplication of thoughts I think it is worth stating them all to get both points of view.

Henry makes five points:

1. The swaged ends of element aluminium tubing is sometimes not concentric and not along the axis of the larger part of the tubing.

Straighten the short swaged end back into line with the main part of the element tubing and tolerate the out of concentricity.

2. The flat washers under the heads of the long 5/16" bolts that hold the extruded clamping section of the boom to the mast bracket will not fit into the channel. Cut off a piece on one side of the 5/16" washer but protect the bare metal exposed against rust.

3. Turnbuckles on the boom support cable are not strong enough and are not provided with locknuts.

Replace these with 5/16" or 3/8" steel turnbuckles with locknuts, do not use the diecast type turnbuckles.

4. Clamps on the driven element near the insulating bush which clamp the connecting cable from the beta match and the feeder are not very strong and the lugs bend if over tightened.

Cut and fit 1/4" inside diameter bush between the lugs of the clamps so as they do not collapse when tightened.

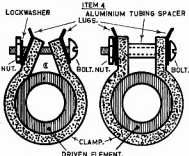
5. Tubing clamps supplied are not entirely satisfactory and although it is pointed out in the assembly instructions not to tighten the clamps to a point where the screws push into the tubing, it is not always possible to get enough clamping action until this is done.

Replace the tubing clamps with stainless steel worm drive type clamps. Henry now has his TH6 up at nearly 20 metres high, and reports that while it is not particularly simple to assemble or erect, when in place appears to be quite substantial.

Now over to Geoff for his thoughts on the TH6-DXX.

TH6-DXX ASSEMBLY

The following points may be of interest to those assembling these beams. Due to similarity with other Hy-Gain models some of this information may be applicable to beams such as the TH3 Mk. 3 etc. also.



TH6DXX Assembly Detail, Cross Sectional View.

Although these antennas are supplied in kit form it doesn't always follow that everything goes together exactly as planned. Recently while assembling a TH6-DXX the following items were modified.

1. Turnbuckles on boom support cables. These were replaced with heavier types as the size supplied had been used for some years on a large 2M yagi (28 foot boom) and these bent due to wind load. It is advisable to run a wire through the turnbuckle to prevent it turning with vibration.

2. 1/2" compression clamps. These are used to hold the smallest diameter tubing on the 10M reflector and 15M director. Due to their small size and the way they are shaped the metal appears to be under stress. During assembly one snapped and subsequent examination showed that the bolt hole was a fraction too small causing the bolt to self tap the metal and thus increase the strain on the clamp. A new clamp was obtained and this too had a similar size hole. By VERY slightly enlarging the hole with a taper reamer a good clearance fit resulted and no further troubles were encountered.

3. Placement of boom support clamps. These simply don't go where the instructions say and will have to be shifted slightly. I moved each clamp 2 1/4" further out along the boom. Using the dimensions supplied one clamp would be in the middle of an element to boom clamping plate!

4. Tubing clamps on driven element. These are used to secure the pigtail from the beta match and the balun to the driven element. As the bolt is tightened the top ends of the clamp move inwards until they are at an angle of about 45°. This then makes it impossible to have the solder lugs on the pigtail fully in contact with the metal on the clamp. At best they will barely touch the clamp. This is a vital point in the electrical connections of the beam. A piece of aluminium tube 1/16" wall thickness, 1/4" I.D., 3/8" O.D. x 15/32" long was placed over the 1/4" bolt where it passes through the clamp and this prevents the shape of the clamp changing as the bolt is tightened but still allows the clamp to tighten firmly on the element. At the same time a flat surface

remains beneath the solder lugs providing a broad even area of metal to metal contact.

5. Securing caps protecting ends of traps. By smearing a trace of epoxy resin over the end of each trap then slowly pushing the cap over it and turning it around several times the caps are firmly locked on.

6. Fitting element to boom brackets for driven element and 10M director. When I attempted to fit these two elements I found that the 1/4" bolts in the centre of the clamping plates would not screw right down. The reason for this is the double walled tubing used in the inner boom sections. If you attempt to screw these bolts hard down the heads will probably shear. As the elements are of equal length either side of the boom they should normally remain in a state of equilibrium, and the bolts at the top and bottom of the clamping plates are there to prevent the element moving out of the horizontal plane. If it is desired to screw the bolts hard down, a pilot hole should be drilled beneath each one through the two concentric sections in boom and the hole then tapped 1/4" to take the bolts. These steps aren't necessary with the clamping plates for the other elements as only a single thickness of tube is involved and this is soft enough to accept the bolts when fully screwed down.

NEWCOMERS NOTEBOOK

Rodney Champness, VK3UG

David Down, VK5HP

BUILDING A WOODEN MAST

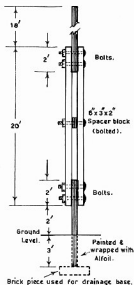
The newcomer to amateur radio and shortwave listening soon learns a lot about antennas, and it is not long before he starts to think of possibilities apart from the wire he has strung from Dad's shed to Mum's favourite tree.

He soon learns that antenna length, height and clearance from surrounding objects become important.

Knowing your formulae and reference to Newcomers' Notebook in July 75 will assist with the antenna length, and this article is designed to assist with the height and clearance factors — building and erecting a simple wooden mast.

The main requirements are permission from your parents, Council and DCA if appropriate, together with three twenty foot lengths of straight grained, knot free exterior timber, one seven foot piece of the same, all being about three by two inches. Five, six inch by half inch galvanised bolts and some nuts, washers and paint completes the immediate essentials. For the ground post, it is advisable to procure some thick Alfalfa, as will be seen later.

Before building commences, give all the timber sections two coats of primer, undercoat and good quality exterior house paint,



Once the mast is hoisted vertical, you can slide home the second base mounting bolt and tighten both base bolts. The guy wires can then be secured at 120 degree intervals around the mast. The centre guys should be about 20 feet from the ground and the top guys, near the top, obviously. Use large turnbuckles at the ground end of the guy wires, so that adjustment can be made to compensate for stretching. Make sure that turnbuckles and pulleys for raising and lowering your antenna are greased several times per year.

With respect to the halyards, do not tie them to cleats on the mast, but use a counterweight which compensates for movement in the antenna.

Full details of guy anchoring, halyards, pulleys and turnbuckles appear in the ARRL Handbook, ARRL Antenna Handbook and RSGB Handbook, and it is beyond the scope of this article to cover those points. Hoping you meet with increased success from raising your antenna up on your home brew wooden mast. ■

VHF-UHF AN EXPANDING WORLD

Eric Jamieson, VK5LP
Forreston, 5233

AMATEUR BAND BEACONS

VK0	VK0MA, Mawson	53,100
	VK0GR, Casey	53,200
VK1	VK1RTA, Canberra	144,475
VK2	VK2WI, Sydney	52,450
	VK2WI, Sydney	144,010
VK3	VK3RTG, Vermont	144,700
VK4	VK4RTL, Townsville	52,600
	VK4RTL, Mt. Mowblatin	144,400
VK5	VK5VF, Mt. Lofly	53,000
	VK5VF, Mt. Lofly	144,800
VK6	VK6RTV, Perth	52,350
	VK6RTU, Kalbarrie	52,350
	VK6RTW, Albany	144,500
	VK6RTV, Perth	145,000
VK7	VK7MT, Launceston	52,400
	VK7RTX, Devonport	144,900
	VK7RTW, Lonsdale	432,475
VK8	VK8V, Wellington	52,200
3D	3D3AA, Suva, Fiji	52,500
JA	JD1YAA, Japan	50,110
ZL	ZL1VHF, Auckland	145,100
ZL2	ZL2MVF, Upper Hutt	28,170
	ZL2VHF, Palmerston North	52,500
	ZL2VHF, Palmerston North	145,200
ZL3	ZL3VHF, Christchurch	145,350
ZL4	ZL4VHF, Dunedin	145,400

No doubt the boys in Tasmania will be satisfied with their efforts in constructing the VK7MT beacon on 52,400, since it alerted VK4ZRO, VK4ZNC, VK4ZJC, VK4ZT, VK4ZRF, VK5ZZZ and VK5ZA on 15.6.76 that the 6 metre band was open, with signals to 5, 6, 15.6, 15.6 according to Joe VK7ZGJ. "QRM" openings were also noted into VK2. So it seems the mid-winter DX is still to be had providing you remember to be around and do some listening and calling.

The Gold Coast VHF monthly newsletter has arrived, and it is interesting to note their UHF repeater is now operational. By the time you read this the input and output frequencies will have been changed to conform to the WIA 70 cm band plan, and will be input 432.225 MHz and output 432.225 MHz. While on repeaters it is hoped by now you are all familiar with the new numbering arrangements for all your repeaters, which should simplify matters considerably.

There isn't much to report on 2 metre activity at present, many operators have gone into hibernation. Graham VK1ED now operates with a long yagi on the band and is working into Sydney from Canberra regularly, using an ICG202 to drive a home built linear using a 6400 on SSB and CW. Graham also reports working VK2ZEE in Ryde at good strength on both 6 and 2 metres.

I am hopeful that with improvements to my own (VK5LP) 2 metre equipment currently being undertaken (more power, better antenna) that Canberra may ultimately be worked from here. It is not an impossible distance (about 1000 km) and ought to be possible with CW anyway. Details of the improvements later when completed.

The Gold Coast newsletter also makes mention of 2 metre SSB contacts being made from that area on the low end of 144 MHz. Those within range are advised to look around 144.100 following the VK4WI Sunday morning broadcast, with VK4FE, VK4VW, VK4ABR, VK4TX and VK4ZAO normally being available. In addition VK2PU can also be heard from Kingcliff.

It has quite impressed me lately to find 2 metre SSB activity so much on the increase in VK4, perhaps my stirring while up there did help a little. However, Nav VK4ZNC writes to advise of a 380 mile contact on 27.6 0000z and a ten element beam, frequency 144.150. The mode used was SSB and no help gained from Es or ducting propagation. It proves once again it can be done, and I recall being told some years ago you couldn't work out of Rockhampton on 2 metres! Thanks, Nav, for your letter, and hope you can extend the distance further with better conditions.

Steve VK3CGZ writes to report a few odd 6 metre openings during June, with up to 20 stations being worked on occasions. He reports word from Graham P29DJ that he is building two 146 MHz carphones to introduce FM to his country. Graham is holding sabbats with Mario VK4MM on 700 kHz, nightly on 6 metres around 0800Z. They fire up on 705 kHz at 0700Z, QSY to 52.050 MHz, then return to 3605 kHz to round off the contact. Most times Mario is audible, running 100 watts. Graham has an FTV650 and has less success on the return path. Currently he is thinking of building up the VK3ZAZ power amplifier, which should help a bit!

ATV is the big scene in Melbourne at present. Steve mentions over 20 stations receiving and transmitting video. Many stations have inter-carrier sound on 431.750, video on 426.25, with the FM talk-back on 147.630 MHz.

GSP from ZL3LN/C Chatham Islands suggests there is a possibility of 6 metre activity on the island from November - maybe another new country for all! Chatham Island is 400 miles east of New Zealand with a population of 600 people, 50 chickens, 4 dogs and 2 amateurs. ZL3LN has finished his tour of duty there and is QRT, but had had the 3500 contacts in six months on HF. Thanks for all the news, Steve.

EME REPORT

Lyle VK2ALU reports the scheduled EME tests for 15.6 were carried out by Charlie VK2ZEN with the assistance of Ian Proctor. A one hour test was made with WJJA, formerly W6FZJ. This was the first contact at his new QTH in Massachusetts. Signals were 2 to 3 dB above noise.

Chart recordings were made from the tape of EME signals received from W8LST on 24.5, to obtain data on fading characteristics of the EME path. Indications of scintillation fading were present in addition to the very marked libration fading pattern.

As the signal was above noise level at all times, even at the deepest fades, the data obtained are the most useful information obtained to date for determining what type of emission and processing of received signals could be used to obtain the greatest advantage from the characteristics of the EME propagation path.

Now we have heard of everything department: W3CGC and crew plan to operate portable EME in South America July-August on 432 MHz. Their antenna will be an array of 16 large yagis, with a measured gain of 1 dB more

preferably a light blue so as to blend with the skyline.

Measure up all timber sections as in the diagram, and arrange the mast horizontally on the ground, using chalk lines on the timber for distances, and either willing helpers or G-clamps to hold the sections together. Mark and drill all necessary holes, and check with the actual bolts being used, to ensure clearance.

Wrap the base post firmly in the Alfoil and fasten securely. Dig the hole for mounting of the mast and place a flat stone or piece of brick in the bottom to act as a drainage footing for the wooden mast.

Place the base section in the ground and cement in place or tramp earth around it, ensuring that the vertical angle is maintained.

Secure the top guy wires (which can be of stranded aluminium or nylon) by wrapping them around the mast, and similarly treat the centre guy wires.

To erect the mast, the main part of it is secured loosely to the base pole by one of the base mounting bolts, so that the bolt acts as a hinge.

The mast is then walked up, using firstly arm power, then a tall step ladder padded at the top to prevent scratching, and finally a 15 foot piece of timber with a non-slip U-grip fitted to the top. If you have access to extra helpers, they can be used to assist with the guy wires for stability.

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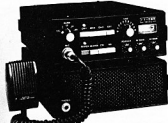
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than their 20 foot dish at home. This Xpedition promises to be quite an operation! A schedule has been circulated for the contacts with various stations including VK2AMW, over the period 31.7 to 2.8. Thanks for all that news Lyle via "The Propagator".

VKSLP had the pleasure of meeting up with Lyle during July and being shown over the VK2AMW EME installation, of which I was duly impressed. Unfortunately for the Saturday night of my stay, 4/7, actually coincided with an EME check-out at 432 MHz with stations in Canada, Holland and Sweden. I was able to observe at first hand what is involved in EME communication, and to see how Lyle with the help of Charlie VK2ZEN actually carried out these tests, which were successful, and will no doubt be reported in Lyle's notes next month.

Just a few words on EME for those of you not conversant with what goes on. Lyle took me out to the station around 0500Z and with his calculations already made as to the position of the moon, he set up the 30 foot dish according to his calculations to be looking at the moon, pressed the transmitting key, and back came his echo! That was before any visual sighting was made of the moon. Subsequently, the dish was left to track the moon on its orbit for some 4 hours before we returned to the site for the actual tests. Lyle pressed the key again and back came the echoes once more. A polar mount is used at the Dapto dish to make this form of tracking possible. Everything went well with the equipment, and I enjoyed every minute of it.

My subsequent travels while on this short holiday run took me to view the installations at Ron VK3AKC in Geelong, who successfully works EME on 1296 MHz via a 20 foot dish, a visit to Ron VK3AGK at Kellor, Melbourne, who has a 12 foot staggered type in his backyard, and then to Ray VK3ATN at Birchby who has had successful EME contacts on 144 MHz using stacked rhombics. He is currently making good use of a 16 foot dish on 432 MHz, about 43 feet in the air, with regular contacts to Melbourne etc. A lot of information was gleaned from all these gentlemen, who were outstanding with their hospitality in every case. So much for the true amateur spirit, something I will always remember.

As other news is somewhat scarce during the winter months, I feel I would like to bring a few excerpts from Guest Editorial by Steve Grimley VK1YK in "Forward Bias" of June 1976. Steve speaks of the few pertinent remarks made in October 1975 by the Superintendent of the Regulatory and Licensing Branch of the then PMG Dept., Mr. Bob Crowe, when he addressed the Moorabbin Radio Club in Victoria. He is quoted as saying "From reports and observations over the past couple of years, it is apparent that the technical part of the amateur service has now disappeared. Satisfaction is now being obtained from the use of electronic equipment, which leads to a social contact type of transmission". The paragraph concluded that this was a "sign of a times".

Steve's editorial comment reads "Many of us recall the days when our licence was to operate an 'experimental station' — later this was changed to 'amateur service' and new licensees were required to stay on CW and signal modes and get a log for approval before being allowed to use telephony at all. It was a rare station that used any commercial transmitting equipment, and commercial receivers were mostly of the rebuilt war d'posed variety. Antennae, even complex beams, were almost always home-made. I can't help feeling that these were the best years in amateur radio. It is indeed pleasing to see the trend to simple homebrew gear once again, with the current novice operator constructional articles appearing in AR and elsewhere.

"The radio amateur has in the past 30 years been responsible for developing many of the advanced communication methods. A notable example of this is the single sideband suppressed carrier system. When I first heard US amateurs using SSB around 1949 my reaction was the same as most others — an amused reference to 'duck talk'. By the early 1950s the system had proved itself, and by the mid 1950s it was being used in home construction articles began to appear in this country. The thrill of my first SSB contact (with W2PT) is one I'll take to my grave, a thrill doubly exciting because I was using a transmitter I'd

built myself. That was nearly 20 years ago. It is testimony to the skill, ingenuity, and enterprise of the radio amateur, that 30 years after they first used the SSB system, it has been given test approval by governments all over the world, and in many places its use is arbitrary.

"And I see two very good reasons to encourage the radio amateur to go back to experimenting and home construction. Firstly, the more we experiment the more likely we are to come up with another monumental breakthrough in communications art. Secondly, there is a great deal of personal satisfaction to be gained by constructing one's own equipment."

I would like to make the following few comments on Steve's guest editorial. There is nothing in the editorial with which I would disagree, it's commonplace. Crowe's comments are probably quite valid for most HF operation, and the commonplace operation of some amateurs on the FM channels. Despite the gradual development and distribution of commercial SSB equipment for VHF, much homebrew construction is still being done. No one can blame the person for purchasing a basic SSB source, with its inherent frequency stability and readout, most amateurs are still building their own linears to increase the power levels of these small commercial units. With solid state power amplifiers now being possible at reasonable levels of power with the provision of better and safer transistors, many such units are actually being built. Valve linears are tending to disappear for at least two reasons, many like to be up with the state of the art, and secondly, there aren't too many good QEB6/40 valves available these days.

One main point I would like to make however, is the very poor acceptance by amateurs of anything made by amateurs. For a number of years now I have awarded a prize at the Mt. Gambier Convention for the best piece of home constructed equipment, and some of the good gear appears each year, good design, well neatly constructed, with a good appearance. Should circumstances change, and you want to do something of a different nature, and the equipment you have so carefully and laboriously constructed be no longer of any use to you, you may sell it for even a small reasonable figure of value you just can't.

I have been through this situation a number of times. I suppose over the years I have built as many as most amateurs who go in for home building on a reasonable scale, but practically nothing has ever been sold at even a reasonable price, it's almost always a give-away. But recently, I sold a couple of items of commercial equipment several years old, still in good condition, and no trouble to get a reasonable price, I was happy and so were the guys who bought the gear. And that's one point of contention with a lot of people — you build something good and it's worthless almost in the eyes of fellow amateurs, but buy something from XYZ Company in Japan or elsewhere and it will always have a fair market price if you look after it. Hence, some of the incentive to home-brew is taken away in these circumstances.

Nevertheless, I believe all amateurs should go through a stage of home construction if only to learn something, and this applies most particularly to VHF and UHF. The use of these bands is no known to many amateurs, and it is a pity that it is so. I want to learn the techniques associated with these areas of operation other than to roll your own, and experience will teach you much — you soon learn just how much inductance is represented by half an inch of wire left when you solder a bypass capacitor with a long lead etc.

Summing up, there is a place for both home-brew and commercial equipment. I think everyone should try their hand at making some gear, particularly at VHF if possible. Maybe more important however, is the need for all amateurs to spread themselves out over our bands as much as possible, if the VHF and UHF population could be increased 100 times there would be a lot more incentive for people to keep actively operating on those bands. The die-hard VHF/UHF type will always be there, but I think it is necessary for the thousands of HF operators who never operate on any other bands to take a serious look at the possibilities that exist for something fresh to be done or thought about above 50 MHz.

That will have to do for now, before I get carried away on this very interesting subject — but I do make a plea for more operation on VHF/UHF by the HF gang — and you don't even

have to build anything these days if you want to play commercial — equipment is now on the market covering 52, 144, 432 and 1296 MHz, take your pick.

Closing with the thought for the month: "To have lost your reputation is to be dead among the living".

The Voice in the Hills

PROJECT AUSTRALIS

David Hull, VK3ZDH

OCTOBER 75

OSCAR 6

Date	Orbit	Time	Long	Lat	W
1	8586	00:57	64.19		
2	8599	01:51	77.81		
3	8611	00:51	62.69		
4	8624	01:45	76.31		
5	8636	00:44	61.19		
6	8649	01:38	74.81		
7	8661	00:38	58.69		
8	8674	01:32	73.31		
9	8686	00:31	56.19		
10	8699	01:26	71.81		
11	8711	00:25	56.69		
12	8724	01:19	70.31		
13	8736	00:19	55.19		
14	8748	01:13	68.81		
15	8761	00:12	53.69		
16	8774	01:05	67.31		
17	8786	00:06	52.19		
18	8799	01:00	65.81		
19	8812	00:54	79.43		
20	8824	00:54	64.31		
21	8837	01:48	77.93		
22	8849	00:47	62.81		
23	8862	01:41	76.43		
24	8874	00:41	61.31		
25	8887	01:35	74.93		
26	8899	00:34	58.61		
27	8912	01:28	73.23		
28	8924	00:28	58.31		
29	8937	01:22	71.93		
30	8949	00:22	56.81		
31	8962	01:16	70.43		

OSCAR 7

Date	Orbit	Time	Long	Lat	W
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1	18112	01:30	79.90		
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2	18124	00:30	64.90		
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3	18137	01:30	75.63		
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4	18149	00:25	63.95		
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5	18162	01:20	77.40		
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6	18174	00:20	62.40		
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7	18187	01:15	76.15		
---	-------	-------	-------	--	--

8	18199	00:14	61.15		
---	-------	-------	-------	--	--

9	18212	01:09	74.90		
---	-------	-------	-------	--	--

10	18224	00:09	59.90		
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11	18237	01:04	73.65		
----	-------	-------	-------	--	--

12	18249	00:04	58.65		
----	-------	-------	-------	--	--

13	18262	00:59	72.40		
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14	18275	01:54	86.15		
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15	18287	00:54	71.15		
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16	18300	01:49	84.90		
----	-------	-------	-------	--	--

17	18312	00:49	69.90		
----	-------	-------	-------	--	--

18	18325	01:44	83.65		
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19	18337	00:44	68.65		
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20	18350	01:39	82.40		
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21	18362	00:38	67.40		
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22	18375	01:33	81.15		
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23	18387	00:33	66.15		
----	-------	-------	-------	--	--

24	18400	01:28	79.90		
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25	18412	00:28	64.90		
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26	18425	01:23	78.65		
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27	18437	00:23	63.65		
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28	18450	01:18	77.40		
----	-------	-------	-------	--	--

29	18462	01:18	62.40		
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30	18475	01:13	76.15		
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31	18487	00:13	61.15		
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MODE B NOTES

— Courtesy by Bob Arnold
Since the last report the following newcomers to Oscar 7 Mode B have been heard:—

VK3AGC VK3AKG VK3BE
— circa ascending mode 200.

The following DX contacts have been reported:—
ZL3AR to VK6KJ and VK6WG
VS6HI to VK6KJ and VK3ZBH
The Melbourne-Hong Kong path is at the extreme limit of Mode B, the window being open for a maximum of 2 minutes on the most suitable orbits —

How can we improve OSCAR contacts? The most desirable antenna set-up consists of circuitry polarised antennas for 432 and 145 adjustable for both elevation and azimuth.

Communication using horizontally polarised antennas is generally satisfactory, rotation in azimuth is virtually essential but elevation can be fixed at about 20 deg. — this gives far better results than horizontal except for horizon contacts.

Remember, the higher the antenna gain the smaller the aperture and therefore the need for more accurate tracking systems.

YRCS

Bob Gutherbert

31 Brandon Terrace

Marino, 5049

I am indebted to Sam Voron who supplied the following information showing YRCS activity in N.S.W.

Some 30 persons attended the Committee meeting of the YRCS on Sunday 20th June, 1976, at Gosford High School. Reports presented for the year of 1975 by K. H. Davies, VK2AR, YRCS State Education Officer, included an announcement that the new N.S.W. YRCS elementary stages 1 & 2 notes are being widely used by



Mini-Mobile/Base Station **COMPACT 120 WATT** **FT-75B** High power, for General use. **FT-75BS** Low power, for Novice use 80 thru 10m **TRANSCEIVER**



TECHNICAL DATA — FT-75B GENERAL

Frequency Range: 80 M 75 KHz segment, 40 M 100 KHz segment, 20 M 150 KHz segment, 15 M 240 KHz segment and 10 M 400 KHz segment.

Mode: Upper Sideband for 20, 15 and 10 meter bands. Lower Sideband for 80 and 40 meter bands. CW for all bands.

Frequency Control: Crystal control VXO with 3 channels per band.

VXO Coverage: ± 3 KHz for 80 M, ± 3 KHz for 40 M, ± 3 KHz for 20 M, ± 3 KHz for 15 M and ± 3 KHz for 10 M.

Antenna Impedance: 50 Ohm unbalanced.

Size: 210(W) x 80(H) x 300(D) m/m.

Weight: 3.8 Kg.

RECEIVER

Sensitivity: 0.5 μ V for 10 dB Noise plus Signal to Noise Ratio on 14 MHz for SSB and CW.

Selectivity: 2.3 KHz nominal bandwidth at 6 dB down, 4.5 KHz at 60 dB down on SSB and CW.

Harmonic & Other Spurious Response: Image Rejection better than 50 dB. Internal Spurious Signal below 1 μ V equivalent to antenna input.

Automatic Gain Control: AGC threshold nominal 1 μ V. Attack time 5 milliseconds and release time 1.5 seconds.

Audio Output: 2 Watts at 4 Ohm impedance.

FT-75B, inc. one crystal for each band 3565, 7085, 14,200, 21400 28550 kHz, mic. & inst. book **\$295**

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TRANSMITTER

Input Power: 120 Watts PEP on SSB and 100 Watts on CW at 50% duty cycle. (Slightly lower on 10 meter.)

Microphone: 50 K Ohm dynamic type.

Carrier Suppression: \sim 40 dB.

Sideband Suppression: \sim 40dB.

Spurious Radiation: \sim 40dB.

Distortion: \sim 30 dB.

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JAS7576-23

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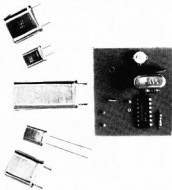
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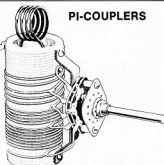
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Suggested for use in "A LINEAR POWER AMPLIFIER FOR AUSTRALIAN CONDITIONS" (Refer "Amateur Radio", April, May & June issues, 1976).

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many of the 26 school, regional and group radio clubs who are currently members of the YRCS (N.S.W.).

Noel Ericsson VK2MF, YRCS State Treasurer, presented a healthy financial position statement of a variety of money raising activities. Brother Cyril Quinlan VK2ACQ, YRCS Private Studies Supervisor, described the successful Easter vacation camp at Wisemans Ferry for the many students around N.S.W. who are studying through correspondence. Activities included radio transmitting, theory classes, Morse classes, YRCS certificate examination etc. These types of activities allow the isolated YRCS student as well as students from other radio clubs to meet each other and gain new forms of incentive and assistance in their studies. Sam Viron VK2BVS, State YRCS Publicity Officer, outlined some of the problems faced by YRCS in this field, and advised the persons interested in new positions of public relations officer, magazine editor for beginner orientated activities, publicity officer and activities organiser for creating YRCS activities, such as radio camping holidays during school and public holidays would be welcome. Rex Black VK2YA, State YRCS supervisor, presented a report from Tim Mills VK2ZTM, President of the NSW Division of the WIA, outlining YRCS participation at the WIA Federal Convention. Several of the items in relation to YRCS and the YRCS Licence were unanimously supported by N.S.W. YRCS and a special thanks was moved to Tim for his interest and support to YRCS activities. Present at the meetings were the WIA based DX group President, Roger Brown VK2BEG and Vice-President, Paul Andros GWL-2PMA. It was decided that their comprehensive short and medium wave listeners' awards would be recognised in the N.S.W. YRCS awards system.

Country enquiries on the Novice Licence course should be directed to Mr. Rex Black, 10 David St., Springfield, 2777, or to Westlakes Radio Club, Novice Training Manual, P.O. Box 1, Terah, 2284.

NOVICE RADIO ON SYDNEY TELEVISION (Channel 9 news)

On July 4th some 60 persons from the Novice Amateur Radio group and the general public attended the WIA based DX group field stations set up on the Southern and Northern heads of Sydney Harbour. Television Stations ABC channel 2 and channel 10 filmed highlights of the activities which included a full quarter wave vertical on 160 metres being suspended by a kite up 125 feet and a full quarter wave earth hanging down a 500 foot cliff. Using 10 watts of AM on 1825 kHz. Reports of 59 into the Blue Mountains and around Sydney, as well as 30 dB over 9 in the Newcastle and Westlakes area were received. Operation from 160 to 120 metres provided several overseas contacts with continuous operation on 27.125 MHz providing a link between the northern and southern head groups. From these sites the regular WIA Sunday morning broadcast for radio amateurs and listeners was relayed on to 1525 kHz AM, 27.125 MHz AM and 28.5 MHz SSB, with those attending being given the opportunity to try their voice at relay identification and call-back operation.

Many thanks, Sam, for an interesting report. Will other States please take note. ■

LARA

Ladies Amateur Radio Association

Last month, we announced that LARA's first birthday had arrived and that celebrations and festivities had been indulged in accordingly. Only now have the details of the resulting story come to light, unshared by our roving reporter. LARA in VK3 held a party on Tuesday 27 July at the Salzburg Lodge for members and selected guests. The evening was a great success and the birthday well and truly (and energetically) celebrated. The bottle of champagne kindly donated by the management was saved for the next monthly meeting with a view to livening up the proceedings of same!

The LARA birthday was also celebrated on the Monday night sked with members all over Australia coming up on air for the occasion — We remind members and all interested YLs that it is allowable for unlicensed YLs (and others) to speak on air

provided that all transmission is supervised according to the regulations, by the licensee of the station concerned. Regular Monday night skeds are held at (or around) 8.00 p.m. EAST on 3650 kHz.

At this time the August exam will be over but belated good wishes to YLs braving the exams, and we hope to hear you on air with brand new, squeaky clean licences (in a few months) when the results come out. Some YLs under pressure of other commitments prefer February exams go on with the study in the meantime.

Plans for LARA activity in the next year or so are still in the idea stage (until meetings and things have been held) so await the next exciting episode in October AR.

33's from Kate Duncan. ■

QSP

WARC 79 AND INTRUDERS

"Included among the aims of the amateur service at WARC 1979 will be the acquisition of amateur exclusive allocations in the 1.8-2.0 MHz and 3.5-3.8 MHz bands, and to clear the whole of 10 MHz. The Soviet authorities have already indicated their willingness to co-operate over the last item". Month on the Air column in Radio Communications July '76.

IARU NEWS

Looking through the list of countries which are members of the ITU there are now 148 altogether. Of these there are 68 countries with no amateur radio societies affiliated with the IARU. Half of these are in Africa, over half of the remainder are in Asia and 5 are in the Pacific area.

Amateurs are active or are known to be able to get licences in about 50 of these countries. In the remaining countries (i.e. 18) amateur radio is either banned altogether (Afghanistan, China, etc.) or it is well-nigh impossible to get a licence (Albania, Iraq, etc.).

As all readers will know, each of these countries has one vote at ITU Conferences. USA, Japan, USSR, UK, Canada, Germany and the larger European countries are large, developed and active in amateur radio affairs.

The number of small independent nations which are members of the ITU is growing. Andorra, Maldives, Vatican, Liechtenstein, Oman, Qatar, Maldives, Kuwait, Bahrain, Swaziland, Lesotho, Comoros are a few of these.

Perhaps further comments are unnecessary in the light of IARU talks in Geneva this month about the situation.

The IARU RI news of May '76 carries the news that the Republic of the Comoros and the Republic of Guinea-Bissau have become members of the ITU. The Comoros call sign series is DGA-DEZ.

From the same source it was most encouraging to note that the almost defunct Ghana Amateur Radio Society organised an amateur station at the Ghana Trade Fair in Accra earlier in the year and gave a demonstration to the Head of State. Two officers of the Liberian Radio Amateur Association travelled to the Ivory Coast during March on a successful mission to promote multinational co-operation in Amateur Radio. It was also noted with interest that the licensing of amateurs in Zambia continued throughout the period when there was a declared state of emergency in the country. During June EL2BA, the IARU committee member of Liberia addressed a conference in Botswana of amateurs from all the surrounding countries to emphasize the need for the formation of a society in countries not having one.

On the WARC 79 front there is nothing fresh to report. The Institute now possesses copies of the voluminous submissions made by the ARRL, Canadian amateurs and CROB to their respective governments. During September there is to be a meeting of various IARU experts in Geneva to prepare suitable WARC 79 amateur radio packages for use by societies or amateurs in the "less developed" countries.

August QST will carry an IARU page devoted to the development of the flourishing Cyprus Amateur Radio Society where a 2m repeater 6000 ft. up on Mt. Troodos is only one item of their activities. This repeater was one of the important unifying

factors for the island's amateurs and contacts through it reach to almost every part of the island as well as to Haifa in Israel. Another interesting item apart from their 10m and 2m beacons is the fact that mobile operations are prohibited except by members of their Cyprus Amateur Emergency Net. ■

REPEATERS

Ken Jewell, VK3ZJZ
Peter Mill, VK3ZPP

At the outset of this month's column I should apologise for the non-appearance of the column for the month of June. Due to the pressure of work encroaching on amateur radio time, it was not possible to prepare a column by the deadline, also there was no news to hand. In a recent QSO with John VK5CU on 40 m I was able to obtain some information for the column which also brought to mind a thought which I have had for some time, if a regular net could be established on 80 m one night a month for repeater groups, they could help each other with any problems, and be brought up to date with developments in the federal sphere and all could benefit with an exchange of ideas, comments on this idea would be welcome.

FEDERAL NEWS

In the near future a meeting will be held with the Post and Telecommunications Department to discuss some of the decisions that came out of the Federal Convention and to formulate the licensing conditions for repeaters that have been under review for some time. It is hoped that this meeting will enable the licensing of repeaters to be easier, and the conditions to be more realistic as well as uniform throughout Australia without the individual rules incorporated by certain parties in the various States.

SOUTH AUSTRALIAN NEWS

Theatreplex working on a repeater for the mid north area of South Australia at Port Pirie.

It is believed that this repeater will be on channel R42, running about 15 watts to a Ringo Ranger antenna and the call sign could be VK5RMN. There has been some problems with the site due to the remoteness, tests have been carried out and it is expected to be on the air by the end of August. A group in Adelaide led by project manager John VK5CU is working on the second repeater for that city, and due to financial assistance by both members and non-members of the WIA, the project is well on the way. The project has been on the go since March and the equipment has been obtained as a kit from VHF Engineering of the United States. The field tests at the site 1350 ft. ASL show that it will favour the north east toward the Barossa Valley. The repeater will run 15 watts through a dipole on possibly channel R46 and the call sign is hoped to be VK5RRR.

TASMANIAN NEWS

Not too much from down that way at this time but the Launceston repeater is still functioning as well as ever, the newest operational repeater in the State in Hobart is providing quite good coverage, but the change from 15 watts to 100 watts is lacking in sensitivity as it can be heard in the north of the State but cannot be triggered. The Loona repeater is not on the air as yet, but we hope to have more news of this next month, however the 432 MHz beacon operating from the site is on the air.

NEW SOUTH WALES NEWS

Adrian has been recalled that from the 1st August 1976 N.S.W. will adopt the new numbering system for repeaters, and use the single digit identification for repeaters that was shown in the July issue of AR in this column under Victorian News. However N.S.W. has made a good suggestion to the changeover from 15 watts through a dipole in the following in calling for a few weeks "I will see you on Geelong channel 8" or "this is VK2XXX calling QO through channel 5 Wollongong". After a few weeks the normal reference to the channel number only will be quite sufficient.

The 1500 ft. proposed repeater for the Blue Mountains in the planning stage at the moment which will be on channel R47, also the VK1 Division is proposing a service on Mt. Ginini



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GENERAL

Frequency Range: 146 to 148 MHz.

Number of Channels: 23 plus 1 priority channel.

Mode: FM.

Frequency Stability: $\pm 0.001\%$

Circuitry: 30 Transistors, 23 Diodes, 4 IC, 5

FET.

Power Source: 13.5V DC.

Prices include Sales Tax. Freight and insurance extra. Prices and specifications are subject to change. All sets are pre-checked before despatch and are covered by our 90 Day Warranty.

Antenna Impedance: 52 ohm unbalanced.

Power requirement: 0.4A receive, 2.2A transmit (DC).

Size: 180(w) x 70(h) x 220(d) mm.

Weight: 2.5 kg.

RECEIVER

Sensitivity: 0.3 μ V for 20 dB quieting.

Selectivity: 15 kHz at 6 dB, 25 kHz at 60

dB.

Audio Output: 2.5 Watts at 4 ohm.

TRANSMITTER

RF Output Power: 1 & 10 watts.

Spurious Radiation: -60 dB or better.

Deviation: ± 5 kHz nominal.

FT-224 (inc. 4 chns.) \$199.00

Extra standard channels \$9.00

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Western Zone Convention at Birchip, October 30/31.
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which will provide a wide service area to southern N.S.W., the channels for these repeaters are yet to be confirmed.

VICTORIAN NEWS

The repeater for Mt. Macedon is now a step closer with the erection of the transmit antenna on the mast and the coax has been run to the shack. The receive antenna has yet to be raised and the various parts of the unit to be put together as a working rig, however the end is coming closer after three years of stagnation.

Also halting slowly is the north east repeater, VK3RNE with the signing of the lease for the site and now the construction of the building can get under way shortly. At Geelong VK3RGL has had its fair share of problems of late with a power supply that went O.K.T., transformers and all, and a time that was about as consistent as a roulette wheel, however these problems have been solved and the repeater is working better

QUEENSLAND REPEATERS

OPERATIONAL

CALLSIGN	Ch	LOCATION OR SERVICE AREA	TYPE OF IDENT	RANGE	PROJECT OFF.
VK4RBN	R48	Brisbane/Mt. Glorious	Audible	80 km	VK4DT
VK4RGC	R42	Gold Coast/Mt. Tamborine	Audible	80 km	VK4ZDA
VK4RAR	R42	Rockhampton/The Range	Audible	100 km	VK4MM

TESTING STAGE

VK4RAT	R42	Townsville/Mt. Stuart
VK4RA1	R46	Ipswich/Denmark Hill
VK4RDD	R44	Toowoomba

than ever. It is hoped that by the time that this is being read, the newly acquired keyer will be beeping out VK3RGL at the appropriate intervals and new to loss coax will be offering less resistance to the RF on the way to the antenna.

On the UHF scene I have been accused of stirring, so for those interested, the Victorian

Division lodged an application with the P. & T. Dept. on 26th July, 1976, for a service repeater on UHF with the proposed call sign VK3RMU to serve Melbourne, the antenna and coax is ready on the site on Mt. Dandenong. The equipment has been obtained and only the keyer has to be built, good news Ron.

IONOSPHERIC PREDICTIONS

Len Poynter, VK3ZGP

Another period of very quiet conditions has been with us again. Since early June there has been little or no solar activity noted. Daytime conditions have been fair on the higher bands when the A index has been low. Even the periods of relatively high A have been less numerous than has been the custom of late.

From July 1 WWV and WWVH 18 and 45 minutes past the hour Solar Flux and A index announcements were curtailed. This somewhat reduced the do-it-yourself information and the 14 minutes past the hour "radio quality report" will cease at the end of September. So our real time solar activity data will be lost.

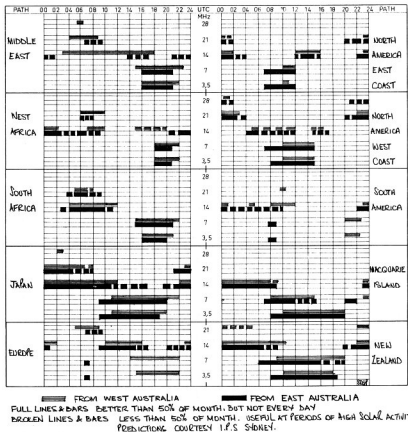
Frank Hine VK2QL has arranged with IPS Sydney to continue their supply of Solar Flux and A index data for inclusion in the VK2WIA Sunday morning broadcast. It is hoped that arrangements will be made to have this information over VK2WIA at a fixed time each broadcast. This will enable those who rely on this valuable data to maintain their records at least on a weekly basis. Thanks, Frank.

Recent articles from the US suggest that we are in for a period of very low sunspot activity. It was noted in the late 1960s that there was a period of around 75 years when there was no visible sunspot activity. Other scientific data confirmed this phenomena. The writer had some quite convincing data to accompany his theories. There is much conjecture that the lack of sunspots in reasonable quantity is causing the decline in rainfall noted over the past few years. The latest Solar Flux predictions still make interesting reading.

Month—	1	2	3	4	5	6	7	8	9	10	11	12
1975—	78	74	72	71	70	70	77	90	80	76	81	75
1976—	74	70	77	74	76	77	79	116	117	117	117	117
1977—	117	117	117	117								

FIGURES 74 72 ACTUAL
FIGURES 116 117 PREDICTED

These figures are at March 76 and are from CCIR Zurich and published in the ITU Telecommunication Journal. The predicted figures for June



July appear high — July looks like remaining around 70 at the time of writing. Quite a few "experts" still consider late 76 as the beginning

of the rise in the smoothed sunspot numbers. The forecasts for June 5, July 5, Aug. 4, Sept. 4, can we go much lower?

20 YEARS AGO

Ron Fisher, VK3OM

SEPTEMBER 1956

The September 1956 issue of Amateur Radio marked the debut of the G4ZU Three Band Minibeam. This was possibly the first beam designed to cover the 15, 17 and 20 metre bands without switching and at the same time be of compact dimensions. G4ZU was of course G. A. Bird who

was later to design the controversial Bird Cage antenna. The G4ZU article was reprinted from the February 1956 issue of the RSGB Bulletin.

Part one of a three part series on Pulse Theory by Ian Berwick VK3ALZ appeared along with New Bottles for Old by Alan Head VK3AKZ. Alan replaced some of the original tubes in his Marconi CR100 receiver with miniature types for improved performance.

Phyl Moncur's YL Corner included a most interesting biography on Austine Henry VK3YL. At that time (1956) she had held her amateur licence for twenty six years.

The Federal Notes consisted of a report on the Region 1 conference held in Stresa, Italy. Forty

official delegates from fourteen countries attended and discussed a wide variety of subjects.

It seems that quite a scare went through the amateur ranks during the early part of 1956. Rumour had it that television receivers might have an IF frequency of around 21 MHz. Federal Executive immediately requested information from the ARRL and also from American TVI expert Phil Rand which was in turn passed on to the authorities. All of this apparently achieved results as the Post-Master-General announced on July 19th that manufacturers should adhere to the Broadcast Control Board recommendation and that the public should be aware of the problems associated with non-standard receivers.

Some words of doubtful wisdom from ARIE BLES

VK2AVA of
SIDEBOARD ELECTRONICS
IMPORTS
Springwood, N.S.W.

Last month I mentioned my involvement in the YAESU MUSEN FRG-7 receiver development.

In the 1950's, some 20 odd years ago, RACAL in England started to apply the drift-free WADLEY LOOP principle in an all-band receiver, which already then aroused my interest. Shielding in high-impedance valve circuit design was then a major undertaking. RACAL used die-cast boxes for the various circuit stages, and home-brewing of a similar receiver was not done at that time.

Ten years later, Ian Pogson of RADIO TV & HOBBIES, now ELECTRONICS AUSTRALIA, undertook the courageous project of the DELTA-HET receiver and again only very experienced constructors managed to make a go of it, with their knowledge of and access to TV alignment equipment.

Four years ago, when the first news arrived about the BARLOW WADLEY receiver, again I became more than interested, procured a sample and found it adequate and started to import the sets from South Africa, to date having distributed over 500 of them. Two years ago, while in DURBAN, South Africa, at the BARLOW factory, I made a plug for the production of a more sophisticated Barlow Wadley receiver, a "cosmetic improved design" with the appearance of a standard communications receiver, but I could not find support for my idea. Some top-level Barlow manager had already decided that the set should remain as it was. That made me decide to go elsewhere with my ideas, and JAPAN was the most likely place to arouse interest. However, even there it was not easy to convince manufacturers of the potentials of an all-band stable receiver design, but I persevered, and supplied them Barlow Wadley samples. Eventually Sako Hasegawa, the progressive manager of YAESU MUSEN saw something in it, although I have a suspicion that the Seiya people, who make the SSR-1 for DRAKE also benefited from one of my Barlow samples.

A year ago Mr. Hasegawa told me during one of my six monthly visits to TOKYO, that he was making progress with his Wadley-loop receiver project, and voluntarily promised me as a reward for my efforts in the matter, to supply me direct supplies of the finished product as soon as it would come off the assembly line. Last November he showed me a completed FRG-7 sample, but had production problems, and mentioned objections against direct supplies to me!

Well, there we are, samples of the FRG-7 receivers are now at a number of places in Australia, I have one myself and must say, it is good, looks good in its type FT-101-E cabinet and performs well. It will soon be the most popular all-band communications type receiver, easy to tune AM, CW and SSB signals, does not overload on strong signals but needs an external antenna, coax fed at the higher frequencies. Good luck to YAESU MUSEN with future new designs, their FRG-7 outperforms the XCR-30 and SSR-1 by a large margin.

ARIE BLES, VK2AVA

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Pty. Ltd.

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ALERT
cartridge fuses



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S.A.: Werner Electronic Industries Pty. Ltd. Unit 25, 6-8 Gray St. Kilkenny, 5009 Ph. 268 2801

Telex: Melbourne, 31447 Sydney, 21707 Brisbane, 41500 Perth, 93244

AWARDS COLUMN

Brian Austin, VK5CA

These two awards should be of interest to Novice Licensees who wish to start chasing certificates—
TEN AMERICAN DISTRICTS AWARD

General—

The Lookheed Amateur Radio Club (W6LS) is pleased to offer the TAD award as an operating incentive to those who have not yet obtained their Worked All States award. The TAD award has already gained a satisfactory degree of popularity with American Novices and DX hams. All correspondence should be sent to the Lookheed Amateur Radio Club, 2814 Empire Avenue, Burbank, California 91504, U.S.A. W6LS will do all it can to be on the air to keep any requested QSO schedule. We particularly appreciate opportunities to QSO DX stations which have received the TAD award.

Rules—

1. The TAD award is available to all licensed hams and club members.
2. American hams must submit postmarked QSL cards as proof of two-way contacts with hams in all ten (1 thru 10) USA call districts.
3. DX hams can meet the requirement stipulated in (2), or they can have their cards and/or logs verified by a local club officer. The signed verified list is acceptable in lieu of postmarked cards.
4. Cards from W6LS and/or W6LS members (who use club cards) do not have to be postmarked.
5. The postmarked original envelope can be sent with a card which does not directly show a postmark.
6. QSL cards (if provided) are returned promptly at no extra cost.
7. No minimum report is required, but each QSL must show a report.
8. All ten contacts must have been made from the same call sign area, such as W2, G3, or VU2. However, these contacts do not have to be made from one location within that call sign area.
9. Contacts can be to or from fixed, mobile, portable, or fixed-portable ham stations; there is no restriction. Contacts count for the call sign area in which they are made.
10. If your call sign changes, previous contacts still count, as long as they were made from the same call sign area in which you now operate.
11. Crossband and/or cross-mode contacts are acceptable.
12. Contacts do not have to be made after any specific beginning date, nor before any closing date.
13. Hand-printed endorsements will be added (per request) for operating distinctions such as CRP, SSTV, Oscar, RTTY, Code, SSB, One-Band, YL, etc.
14. Remember that Hawaii (KH6/WH6) is in the 6th USA call district and Alaska (KL7/WL7) is in the 7th USA call district.
15. Application must be accompanied by one dollar (cash, USA stamps, or IRC's) to pay award costs and postage.

San Rafael High School Radio Club is sponsoring a "NOVICE ALL-AMERICAN" AWARD.

This award is designed for two purposes. The first is to provide an award that is well within the reach of any novice. All a novice need do is to work one station in each of the ten call areas and submit a list of contacts with the date and time of the contacts to the Awards Manager, along with \$1 or 4 IRCs for handling.

The second purpose of this award is to encourage the more advanced licence holders to work a few novices. To this end, this award is also available to licence holders above the level of novice. However, to encourage the above, the more advanced licence holder must work a novice in each of the ten call areas. Submit for the award in the same fashion as the novices.

As a wild card for incentive purposes, any

territorial possession of the USA outside the continental limits (including Hawaii and Alaska) listed by the ARRL as a country may be substituted for one of the ten call areas.

The awards manager is—
William A. Pearson WB6OJ,
25 Rudnick Avenue,
Novato, California 94947.

MAGAZINE INDEX

Syd Clark, VK3ASC

BREAK-IN May 1976

From Spark to Space; Profile of a Radio Pioneer
Syd Clark; Ashburn in the Mid-Twenties;
Tavulu.

NZART GOLDEN JUBILEE CALLBOOK

A copy of the latest issue of the NZART has just reached the writer for a mention in this month's notes. New Zealand Amateur Radio Stations are listed alphabetically within each of the four ZL call sign areas. In addition there is a complete list of NZART Non-transmitting members and a great deal of information which will be useful to DX'ers and SWL's, not to mention the full gamut of advertising.

CQ MAGAZINE March 1976

The DXCC and Countries List Criteria; Kenwood TS-520 Transceiver Additions; Chicago FMers direct-Dial Police via 911 Emergency Number; A receiver, Pre-amp for Heath SB and HW Series Transceivers; Hamspeak; Review; Kenwood TS-700A; A Backspace Modification for the WOLMD Keyboard; Improved Performance from the Drake R-4B and T-4XB; Longwave Simplified; Improving the Heathkit HW-101 Transceiver; Antennas.

CQ MAGAZINE May 1976

A Single Element Dipole Antenna for 15 to 20 Meters; An Audio Powered Noise Clipper; W5DFU, Fast Scan/Slow Scan Innovator; Restoring old Transmitter for Novice Use; An Inexpensive Memory Keyer for Contests; From Novice to Extra at Age 13, A Quick and Easy 160 Metre Vertical Antenna.

HAM RADIO May 1976

A Pin Diode Transmitter/Receive Switch; Cylindrical Feed Horns; Six Element Collinear Array; Low Profile Three Band Quad; Selective Antenna System; Loop Yagi Antennas; Towers and Rotators; ZL Special Antenna; 5/8 Wavelength Vertical Antenna for 2M; Low Cost Antenna Rotator; Aural SWR Indicator; VHF/UHF Antenna Techniques.

QST May 1976

A Boondoggle in the Boondocks; Learning to Work with Integrated Circuits; A PROM for the Accu-key; Power Amplifier Development with your Transistors; One KW — Solid State Style; The 40-M Wangle; Build A Tune-Tin Home for Sweepstakes; Frequency Measuring Test; Results 42nd ARRL November Sweepstakes.

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

Dear Sir,

Further to my article dealing with rechargeable nickel and alkaline batteries, published in March 1976 AR, I have come across two separate cases where a nicad cell seemed completely dead. Not only was there no voltage across it but when checked both ways on an ohmmeter the cell showed a dead short.

On the assumption that one could hardly make matters worse and that there must actually be a short in the cell, I got a couple of leads and connected them to a twelve volt ten ampere power source (a car battery would do) and jabbed the leads momentarily across the cell. (Don't hold the leads on even for a second or the cell might explode). As I had hoped the short circuit cleared and the cell immediately showed a slight voltage. After two or three slow charges the cell came

back into what appeared to be normal working order.

I can only conclude that there was a small whisker of metal somewhere inside the cell which was causing an internal short circuit and the surge of high current was sufficient to fuse it and clear the short. Anyway it is a tip worth trying with nicad cells which show this condition.

Roy Hartkopf VK3AOH.

The Editor,

Dear Sir,

I am writing this letter regarding a confidence trick played on me by a person involving parts for my amateur radio set. I hope that you publish this in the next AR so it does not happen to some other amateur.

At approximately 4.40 p.m. on Wednesday, 7-7-76 I was called on the telephone by a friend of mine whom I know very well and who had something for me. I proceeded to my car which was garaged and went to his place. I stayed with him for no more than twenty-five minutes and returned home. On my return, I was informed by my mother and father that a "Brian Perry" from AWA had called with some parts for my radio set.

These were three used tubes a 6BQ7A, 6CF80, 6AV8 wrapped in brown paper. This "Mr. Brian Perry" told my parents that he was doing me a favour by dropping them off as he knew that I was anxious to obtain the parts and also that he could not stay long as his boss was in the car waiting for him.

He said to my parents that he had telephoned me earlier? and that he was surprised I was not at home? also that he knew where I was going? and that he would find me there. My father being a trusting and good hearted chap, said that he would pay this "Brian Perry" then and save him the bother.

My father was told the parts were \$19.50 and this was written on the brown paper with a message — "Phone Don tomorrow — it satisfactory 747 8148. My father gave him a \$20 note and was given fifty cents change. On returning I rang the 747 8148 number to find that it was a non-existent number.

This "Mr. Brian Perry" is about 45, has brown wavy hair which is receding at the forehead, is about 5'7" tall, medium to fair complexion and weight approximately 12-13 stone, he was dressed in brown suit with white shirt. He is glib and fast talking and had alcohol on his breath at the time. This trick occurred in the eastern suburb of Sydney, but could happen anywhere, I guess.

I warn fellow amateurs and their families to be careful of this trick and for them to watch out for this chap, who seems to have done it many times before. I would be interested in any information any AR readers have regarding this person.

Yours faithfully,

James Goodgar, VK3JO.

(We hope that members will be alert to this confidence trick and report any similar occurrences to local authorities — Ed.)

INTRUDER WATCH

Alf Chandler, VK3LC

1536 High Street, Glen Iris, 3146

I wish to enlarge on two statements made in "AR" of July 1976. Firstly, concerning Radio Pakistan, on page 28 "IARU News" quoting the then PMO Department as saying: "while the Administration cannot of course condone the use of Amateur channels for broadcasting purposes, in view of all the circumstances, it is considered that the assurance given by Pakistan that it will vacate the channel and until doing so, will limit operation to times unlikely to affect seriously the activities of Australian amateurs."

Twenty years later, Radio Pakistan is still as active and virile as ever, broadcasting in the 7 MHz band at times around 1200z because of a resolution taken at the 1958 ITU Conference. The resolution is as follows — "PAKISTAN — Recognising (a) that the frequency management programme outlined in Article 10 of the Regulations has not been accepted by all frequency users; (b) that this procedure does not solve the prob-

lem of a large number of out of band stations which are already in operation; (c) that this procedure does adequately cover the needs of the countries not having sufficient listings in the Master Frequency Register; (d) the Delegation of Pakistan accepts this procedure only on a trial basis.

The Delegation of Pakistan is not satisfied with the allocation in the band 7-7.3 MHz particularly, and therefore further reserves the position of its country on Resolution No. 10 annexed to these Regulations, relative to out of band broadcasting."

Resolution No. 10 states — "The Administrative Radio Conference, Geneva, 1959 — considering (a) that the sharing of frequency bands by amateur, fixed and broadcasting services is undesirable and should be avoided; (b) that it is desirable to have world-wide exclusive allocations for these services in Band 7; (c) that the band 7000 to 7100 kHz is allocated on a world-wide basis exclusively to the amateur service; (d) that the band 7100 to 7300 kHz is allocated in Regions 1 and 3 to the broadcasting service and in Region 2 to the amateur service; resolves — that the broadcasting service should be prohibited from the band 7000 to 7100 kHz and that broadcasting stations operating on frequencies in this band should cease to operate in substance — the provisions of No. 117 of the Radio Regulations".

No. 117 reads — "Where, in adjacent Regions or Sub-Regions, a band of frequencies is allocated to different services of the same category, the basic principle is the equality of right to operate. Accordingly, the stations of each service in one Region or Sub-Region must operate so as not to cause harmful interference to services in the other Regions or Sub-Regions".

It will be very interesting to note what is going to be "resolved" at the WARC Conference in 1979 and whether it can be implemented!

Secondly, page 30 — "Guidelines etc." section 8 and 9 refers to "pirates in the 11 metre band", and says in substance — "These operators are intruders and should be treated as such".

While being substantially correct, I would like to qualify that statement. The Intruder Watch is mainly concerned with Commercially oriented intruders, and deals with our Central Administration whereas, these "pirates" are the concern of the Divisional Administrations — the case of apprehending them, quickness is the essence of the operation and, therefore, instead of alerting Divisional Intruder Watch Co-ordinators it would be much quicker to telephone the Divisional Telecom office where procedures could be implemented immediately to apprehend the "pirate". They have ways and means of detecting "pirates" if alerted at the appropriate moment. After that a formal report could be forwarded to the Intruder Watch Divisional Co-ordinator concerned.

CONTESTS

Kevin Phillips, VK3AUQ

Box 57, East Melbourne, 3002

CONTEST CALENDAR

September

11/12	European Phone Contest
15/18	YLRL "Howdy Days"
15/19	Scandinavian CW
28/28	Scandinavian Phone

October

2/3	VK/ZL/OCEANIA PHONE
9/10	VK/ZL/OCEANIA CW
16/17	Scouts Jamboree
16/17	RSGB 7 MHz CW
30/31	CQ WW DX Phone

November

16/18	RSGB 7 MHz Phone
27/28	CQ WW DX CW

YLRL "Howdy Days"

Starts 1800 GMT, 16 September and finishes 1600 GMT on 18 September. This activity is for YLs, and scoring is based on contacts between YLs only. All bands and modes may be used, but cross band or net contacts do not count. Scoring is 2 points for each YLRL member worked and 1 point for each non-member. Only one contact with the same station is allowed regardless of the band. For the final score, add the QSO points, there are no

multipliers. Logs to be sent to Beth Newlin, WA6F 829 W. Prince Road, 06, Tucson, AZ85705, by 18 October.

SCANDINAVIAN ACTIVITY CONTEST

CW — starts 1500 GMT on 18 Sept. and finishes 1800 GMT on 19 Sept.

Phone — starts 1500 GMT on 25 Sept. and finishes 1800 GMT on 26 Sept. All bands 3.5 to 28 MHz may be used. The following prefixes will be considered as countries for the contest: LA/LI/LG, JW, JX, OH, OJ, OX, OY, OZ, SM/SK/SL. Classes are Single operator, Multi operator, single and multi transmitter. Multi transmitter stations must use separate series of serial numbers for each band.

Exchange RS(T) and a progressive QSO number starting with 001. Scoring is 1 point per completed QSO, and the multiplier is the sum of SAC countries worked on each band as listed above. Final score is the sum of QSO points from all bands multiplied by the sum of the multiplier from each band (max. of 10 per band). Scoring is on an all-band basis only.

Include a summary sheet showing scoring and other information, your name and address, and a signed declaration that all rules and regulations have been observed. Mailing deadline is 15 October and logs go to: SSA Contest Manager, SM0DZ, PO Box 3036, S-195 03, Maersk, Sweden. ■

HAMADS

- Eight lines free for all WIA members. \$9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Commercial advertising is excluded.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTH means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

FT75 Transceiver with DC power supply, many xits, inbuilt VFO, 80 and 20m (VFO removable leaving no marks), \$250 ONO (going Atlas). Sane SWR meter model SE-40SP, works ok on HF, 12.5. Desk Mic model DM-112 with extra long goose neck (50k in, 12.5). EA240 type R x 5 to 30 MHz, pass any test of appearance and performance at \$160 ONO. V4KXT, CX 496, Dalby, 4405.

2 Mx FM — 2 AWA MR6As, good cond., six chan., 15 watts out, good RX, six chan. A(37), B(40), C(43), 50, R2, R8 to be shared between both rigs — \$110 the lot ONO. Contact Ken Jewell VK3AKK, Ph. (03) 604 8219 BH or (052) 82 2160 AH.

Aciltron Transceiver, all bands, 400W PEP, digital dial, \$425, will trade. Ph. (03) 58 7441.

Heathkit SB801/SB901, 80-10m Transceiver, plus **SB610 Monitor** and **SB600** matching ext. speaker. USB, LSB, CW and RTTY modes, all bands. All units in good condition, no mods., to be sold as one unit complete with manuals, \$475 ONO, or would discuss a swap with a Yaesu, Trio or Uniden AC/DC Transceiver. VK2BIP, QTHR. Ph. (060) 76 9331.

FT75 Transceiver with AC supply, DC supply, FV 50C VFO, under dash mobile cradle and front cover, home station table veneer console to house above gear, 9 ft. centre-loaded multi-band whip, \$270 ONO. Alan Bradley VK3LW, 70 James St., Belmont, 320. Ph. (052) 43 7550.

HF Transceiver, AWA 160m-80m, tunable R, x 3ii controller, ch on Tx, 12V DC or 240V AC, ex Castlemaine Fire Brigade Base Stn., \$50. Joe Dorman VK3YHZ, Ph. (054) 23 2367.

FT220 Yaesu 2m Transceiver FM/SSB, with repeater function property of VSBE, \$295. Contact VK1BH, QTHR. Ph. Bus. (062) 65 5347, AH (062) 65 6052.

FT101B Transceiver, excellent condition, no mods, complete with CW filter, \$520. VK3UM, 30 Rillway Rise, Chirnside Park, 3140. Ph. (03) 725 0783 AH.

Collins KWM2A Transceiver, 3253A Transmitter, both as brand new and with matching 240V AC power supply. Ph. (03) 24 1231, AH (03) 20 6135.

Pye MTR MK1 Tx Rx xlt locked about 25W to final and manual, \$90. **Pye 627 SW** transceiver, contains DC-DC inverter and manual, \$40. VK3EB, QTHR. Ph. (03) 82 1769.

FT200 Transceiver and power supply, no mic, \$320. Tec TO-2-2 in. Oscilloscope, \$50. VK2BVR, QTHR. Ph. (02) 620 1444.

Service Manual for RS223 Communication Rx, consisting of complete detail of voltage and alignment data, each unit, mechanical repair with full descriptions, components and parts with two large circuits containing int. and ext. wiring diagrams, layouts of adjustment points of each unit etc., all these for \$22, incl. postage. J. C. van Ooijen, Box 141, St. Kilda West, 3182, Vic. Ph. (03) 699 2400.

Vertical Hy-Gain 18V antenna, base loaded 10 to 80m, unused, \$29. QSO ant. components, 2 crossarms, boom, 8 al. and fiberglass spreaders (no ant. wire), \$40. VK3UJ, QTHR. Ph. 874 5632.

Trio 9R 590S Rx 0.5-30 MHz AM/SSB, ext. cab., handbook, \$120 ONO. P. Hamilton, 10 Highmore Ave., Bayswater, 3153. Ph. (03) 729 2504.

FT260 Transceiver with FP200/250 power supply and English manual, few hours use in as new cond., can demonstrate any band, \$375. VK2BTV, Ph. (02) 498 3926.

Tim Carphone, 10W AM, good cond., PS, inbuilt, front panel, and tuning indicator, Offers, 6m beam, 5 el. folded dipole, DE. Offers, **Ditaphones**, good cond., PS and speaker units inc. and mics, \$20, some tapes. Bruce R. Kendall, 10 Carter Cres., Werribee, 3030. Ph. (03) 741 2382, 741 2350, 741 1127 or 741 2382.

Kenwood TR2200g 2m FM 1W ch. 8 (4), A. Brand new, hardly used, \$160 complete. FTV650 6m Transverter, brand new, used once only, complete inc. patching leads, manual, carton, etc., \$130, must sell the lot very soon. Bruce Kendall, 10 Carter Cres., Werribee, 3030. Ph. (03) 741 2382 any time.

Heathkit HW101 Transceiver, complete with mic. and AC PSU, Heath HN-31 dummy load, AR2 2m vert. antenna plus 4 Heath vert. for 40, 15 and 20m. Owner returning to USA, must sell, \$340 the lot. VK1DS, QTHR. Ph. (062) 85 5001.

FT200 Transceiver with FP200 power supply, in original carton, \$300. Also 240V/100V 875VA Transformer, by Don Electric, what offers? L. T. Swain VK2CS, QTHR. Ph. (049) 59 1629.

Tri-Band Quad Kit, VK3ASC type, brand new, unused, \$135 freight forward. VK4FG, 153 Mill Drive, Mt. View, Townsville, 4814.

Oscilloscope, Cosmor Model 1065, mint condition, complete with Hi-Z probe V amp DC to 11 MHz 4 in. screen, enquiries in writing to James, of State Crown Law Dept., 33 Franklin Street, Adelaide. Price: \$100 firm.

Bird wattmeter module type 500C, \$40. Also **Woden UM2** modulation transformer, two of three inch ayeleys, Hills five section fifty feet tubular mast with guy rings and foot plate. Offers, VK2BJQ, QTHR. Ph. (02) 642 0122 Bus.

FT2P as new. Ch. 40, 50, R2, R8, \$150. Ken KP202 handheld transceiver with leather case and charger, ch. 40, R2, R8 with spare whip, \$145. **524HRF** 5/8 cowl mount 2m whip, untrimmed, \$25. All units perfect cond., no mods., with relevant manuals and accessories. All offers considered. VK3ASI, QTHR. Ph. (02) 61244 bus or (052) 43 1283 AH.

WANTED

Automatic Keyer with paddle, 240 mains operation. VK2ABC, QTHR. Ph. (02) 451 1313.

455 kHz/2.1 kHz mechanical filter PP109/GRC, CX121U/U cable. MT297/GRC, AM/5-GRC, C375, VR7/GRC, G8/GRC, AN/PR C-25, AN-C375, AN/VR46, 47, 29, any US army technical manuals. Top prices paid. D. L. Leupold, 9 Hyland Ave., Darlington, SA, 504. Ph. (08) 296 4250.

Transmitter FLDX400, must be good, VK2BDY, QTHR.

Goodmans Axiom 300 speaker, P & P to VK3PR, 6 View Ct., Leongatha, 3953. Ph. (058) 62 2711.

WANTED KNOWN

VK7 Division Hamfest, 13th-14th November — Evandale. Usual activities starting at 1300 hrs., smorgasbord dinner Saturday night and Barbecue Sunday lunch. Details at the Ham. Fest. Box 80, 1010, Launceston, 7250. Attn. Mr. L. Dowl VK7ZLD, or phone (003) 32 1213.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. J. H. WINTON VK3XR
Mr. D. R. MILLEN VK2LQ
Mr. J. B. DEERING VK2ND
Mr. A. F. JACOBSEN ex VK3EM
ex VK4GM

Mr. M. O. BESTED VK2AEB
Mr. W. J. LEWIS VK2YB
Mr. R. C. GODSALL VK2ARG
Mr. A. H. CLYNE VK3ACC
Mr. M. W. T. CHERRY VK2ZBA

W. J. T. (BILL) FABER VK4WF

Bill was born in London in 1907 and emigrated to Australia in 1911. He obtained operator licence No. 3316 in February 1924. Bill served as a Squadron Leader in New Guinea during the last war.

He retired from the PMG in 1972, and passed away at his daughter's residence, Roma.

Bill leaves a son and daughter to whom the Queensland division expresses sympathy.

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GENERAL: • **All amateur bands** 10 thru 80 meters in seven 600 kHz ranges • **Solid State VFO** with 1 kHz dial divisions • **Modes** SSB Upper and Lower, CW and AM • **Built-in** Sidetone and automatic T/R switching on CW • **30 tubes** and semi-conductors • **Dimensions:** 5½"H, 10¾"W, 14¼"D (14.0 x 27.3 x 36.5 cm). **WL:** 16 lbs. (7.3 kg).

TRANSMIT: • **VOX or PTT** on SSB or AM • **Input Power:** SSB, 300 watts P.E.P.; AM, 260 watts P.E.P. controlled carrier compatible with SSB linears; CW, 260 watts • **Adjustable pi-network.**

RECEIVE: • **Sensitivity** better than ½ µV for 10 dB S/N • **I.F. Selectivity** 2.1 kHz @ 6 dB, 3.6 kHz @ 60 dB • **AGC** full on receive modes, variable with RF gain control, fast attack and slow release with noise pulse suppression • **Diode Detector** for AM reception.

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- **Low Cost • All Solid State • Built-in AC Power Supply • Selectable Sidebands**
- **Excellent Performance**

PRELIMINARY SPECIFICATIONS: • **Coverage:** 500 kHz to 30 MHz • **Frequency** can be read accurately to better than 5 kHz • **Sensitivity** typically 0.5 microvolts for 10 dB S+N/N SSB and better than 2 microvolts for 10 dB S+N/N AM • **Selectable sidebands** • **Built-in power supply:** 117/234 VAC ± 20% • **If the AC power source fails** the unit switches automatically to an internal battery pack which uses eight D-cells (not supplied) • **For reduced current drain** on DC operation the dials do not light up unless a red pushbutton on the front panel is depressed.

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